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CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

AN ADDRESS on the Spirit of Medicine. By J. MITCHELL BRUCE, M.A., LL.D., M.D. Lond., F.R.C.P. Lond. & Irel., Consulting Physician to Charing Cross Hospital..... 701

ORIGINAL ARTICLES:

Some Observations on Dysentery. By WILLIAM MAGNER, M.B. R.U.I., D.P.H., Ex-Lieutenant, R.A.M.C.; Demonstrator of Pathology and Bacteriology, University College, Cork; Honorary Pathologist, North Infirmary, Cork 703

A Series of Military Cases Treated by Hypnotic Suggestion. By J. BENNETT TOMBLESON, M.B., B.Ch. Oxon., Lieutenant (local Captain), R.A.M.C. 707

The Luetin Reaction in Syphilis. By WILLIAM FLETCHER, M.D. Cantab., Pathologist, Institute for Medical Research, Kuala Lumpur, Federated Malay States..... 710

The Surgical Uses of Ozone. By GEORGE STOKER, M.R.C.P. Irel., M.R.C.S. Eng., Major, R.A.M.C..... 712

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Placenta Prævia and Cæsarean Section. By A. G. TRESIDDER, M.D. Lond., Captain, I.M.S..... 712

Left Fallopian Tube Found in Left Femoral Hernia. By R. G. RENNY, M.R.C.S. Eng., L.R.C.P. Lond. 713

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE:
SECTION OF OBSTETRICS AND GYNÆCOLOGY:—Exhibition of Specimens.—Concealed Accidental Hæmorrhage.—Acute Toxæmia of Pregnancy.—Cæsarean Section and Hysterectomy for Accidental Hæmorrhage..... 713

REVIEWS AND NOTICES OF BOOKS.

Welfare Work: Employers' Experiments for Improving Working Conditions in Factories. By E. Dorothea Proud, B.A. Adel..... 714

The Milk Problem in Indian Cities, with Special Reference to Bombay. By Lemuel Lucas Joshi, B.Sc., M.D. 714

European and Other Race Origins. By Herbert Bruce Hannay 714

Miscellaneous Volumes 715

NEW INVENTIONS.

An Improved Apparatus for Dark ground Illumination in the Early Diagnosis of Syphilis (Claude H. Mills, M.R.C.S., L.R.C.P. Lond.).—(*Illustrated*) 716

An Automatic Delivery Apparatus for Fluid Media. (From the Biochemical Laboratory, Cambridge) (Sydney W. Cole, M.A.)—(*Illustrated*) 716

LEADING ARTICLES.

THE CONFERENCE OF MEDICAL AND PANEL COMMITTEES 717

THE INTERPRETATION OF LABORATORY REPORTS 718

ANNOTATIONS.

High Spirits and Juvenile Crime 719

The Prevention and Treatment of Venereal Diseases in the Metropolis 720

Weil's Disease in Flanders 720

The Medical Defence Union..... 720

The Metropolitan Water-supply 721

The Effects of Antityphoid Inoculation in the Italian Army 721

The Regulation of Prostitution and of Venereal Disease in Sweden..... 721

Urea in Plants 722

The Notification of Tuberculosis in Ireland 722

The Thymus Gland in "Thymus Death" 722

VITAL STATISTICS:
Health of English Towns 726
Health of Scotch Towns 726
Health of Irish Towns..... 727

SPECIAL ARTICLES.

The Link between the University and the Factory..... 723

Bacillary Dysentery and B. Enteritidis (Gaertner) Infections 724

Ireland 724

The Services 725

OBITUARY.

W. A. Meredith, M.B., C.M. Edin., F.R.C.S. Eng. 727

James Beresford Ryley, M.D. Brux., M.R.C.S. Eng., L.R.C.P. Edin. 727

Emile Lagrange, M.D. Louvain 727

Chauncy Puzey, F.R.C.S. 727

CORRESPONDENCE.

Spinal Anæsthesia and the Acute Abdomen (Mr. John Morley) 728

The Preparation of Stable Colloidal Antimony (Dr. Upendra Nath Brahmachari) 728

The Diagnosis of Tuberculosis by Tuberculin (Dr. A. F. Bill) 728

The Agglutination of Meningococci in Relation to Curative Serums (Dr. Halliday Sutherland) 729

"Clergymen's Sore throat" (Dr. Geo. Steele Perkins)..... 729

The Royal Army Medical Corps Gazettes (Mr. J. Y. W. MacAlister)..... 729

Bentley and Trimen's "Medicinal Plants" (Dr. J. L. Kerr) 736

The Prolificity of Opposite Twins 737

THE WAR.

The Casualty List..... 730

Mentioned in Despatches..... 730

Deaths among the Sons of Medical Men..... 730

The Diet of the Munition Worker 731

War Record of the London Medical Schools 732

Princess Henry of Battenberg's Hospital..... 732

Fourth Southern General Hospital (T.F.) 732

Montenegrin Relief Fund..... 732

Hospital for Wounded Officers.. 732

War Hospitals in India 732

OBITUARY OF THE WAR:

Arthur Nimmo Walker, B.A., M.D., B.C. Cantab., Lieutenant-Colonel, R.A.M.C.—(*With Portrait*)..... 730

Arthur Anderson Martin, M.D., F.R.C.S. Edin., Major, New Zealand Medical Corps 730

Thomas Cameron Houston, M.B., Ch.B. Glasg., Captain, R.A.M.C.—(*With Portrait*) 731

Thomas Strain, M.D. Glasg., D.P.H. Cantab., Captain, R.A.M.C.—(*With Portrait*) 731

George Huntly Wood, M.B., B.S. Durh., Captain, New Zealand Medical Corps.—(*With Portrait*)..... 731

MEDICAL NEWS.

Royal Naval Hospital, Stonehouse 723

Medical Society of London 729

The late Edith Cavell 732

Royal Colleges of Physicians of London and Surgeons of England: Pass-list 733

University of Glasgow: Pass-list 733

Literary Intelligence 734

Infantile Paralysis in Aberdeen 733

Royal College of Surgeons of England..... 734

Medical Mayors in the West of England..... 734

Gifts of the Khartoum Chapter 734

The Will of the late Sir Victor Horsley..... 734

The late Dr. J. G. Macindoe..... 734

Assistant Medical Officer of Health at Plymouth 734

The late Dr. John R. Hamilton 734

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 734

House of Commons 734

Vacancies 735

Births, Marriages, and Deaths.. 736

Books, &c., received..... 736

Notes, Short Comments, and Answers to Correspondents... 736

Medical Diary..... 737

Meteorological Readings..... 747

Acknowledgment of Communications received 738

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

JOHN BALE, SONS & DANIELSSON, LTD.,

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INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion ..... Cover 1
Gardner—Manual of Surgical Anæsthesia ..... Cover 1
Lockhart-Mummery—Diseases of the Colon and their Surgical Treatment ..... Cover 1
Mathews—Physiological Chemistry ..... Cover 1
Moor & Partridge—Aids to Bacteriology ..... Cover 1

BALE, SONS & DANIELSSON:—
Disturbances of the Visual Functions 1
Emergencies in Medical Practice 1
Hawthorne—Studies in Clinical Medicine ..... Cover 1
The Internal Secretory Organs: their Physiology and Pathology. 1

CHURCHILL, J. & A.:—
Squire's Companion to the British Pharmacopœia ..... Cover 1
Squire's Companion to the British Pharmacopœia 29

LEWIS & CO:—
Binnie—Manual of Operative Surgery 3
Burnham—Hæmocytes & Hæmic Infections 3
Cooper—Sexual Disabilities of Man and their Treatment and Prevention 3
Goodall and Washbourn—Manual of Infectious Diseases 3
Lewers—Diseases of Women 3
Lockwood—Diseases of Stomach. 3
MacLeod—The Pathology of the Skin 3
Murrell—What to Do in Cases of Poisoning 3

LEWIS & CO.—(Continued).
Ostrom—Massage and the Original Swedish Movements 3
Radcliffe-Crocker—Diseases of the Skin 3
Russ—A New Treatment for Gonorrhœa ..... Cover 1
White—Occupational Affections of the Skin 3

MEDICAL PUBLISHING CO.:—
Lane, Sir A.—Operative Treatment of Fractures ..... Cover 1

NISBET & CO.:—
Romer and Creasy—Bonesetting, &c. ..... Cover 1

SAUNDERS COMPANY:—
Crandon & Ehrenfried—Surgical After-Treatment 5
Kemp—Stomach, Intestines and Pancreas 5

SAUNDERS CO.—(Continued).
Morrow—Diagnostic and Therapeutic Technique 5
Smithies and Ochsner—Cancer of the Stomach 5
Smithies and Ochsner—Cancer of the Stomach ..... Cover 1

WRIGHT & SONS (BRISTOL):—
Morison—An Introduction to Surgery ..... Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering, Lisping, & Cleft-Palate Speech..... Cover 1
British Commercial Gas Association—The Sun's Fight against Fog 8
Ketley Stammering ..... Cover 1
Matthews—Wood: Application of Trusses to Herniæ ..... Cover

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES, MEDICAL .. 51, 52

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford .. 47
Ashwood House, Kingswinford .. 45
Barnwood House Hospital..... 46
Bishopstone House, Bedford 45
Brunton House, Lancaster..... 45
Camberwell House, Peckham-road 47
Capel Lodge Retreat and Sanatorium, near Folkestone 47
Cheadle Royal 46
Clarence Lodge, Clapham Park .. 45
Colthurst House School, Alderley Edge 45
Coppice, The, Nottingham..... 46
Dalrymple House, Rickmansworth 48
Dartmoor Sanatorium 49
David Lewis Colony, Alderley Edge 45
Duff House, Banff..... 48
General Manager, Craven-street.. 49
Ghyllwoods Sanatorium 47
Grove House, Church Stretton .. 48
Grove, The, Catton, Norwich 46
Haslemere Nursing Home 49
Haydock Lodge, Newton-le-Willows 47
Heigham Hall, Norwich 46
Littleton Hall, Brentwood 49
London Fever Hospital 46
Malling Place, Kent 48
Melbourne House, Leicester 46
Mendip Hills Sanatorium 48
Moat House, Tamworth 46
Newmains Retreat, Lanarkshire.. 48

ASYLUMS—(Continued).
Nordrach-on-Dee, Banchory 48
Northumberland House, Finsbury Park 45
Northwoods House, Winterbourne 47
No. 160, L.O., Strand 49
Peckham House 47
Pendyffryn Hall Sanatorium, Nordrach in Wales 48
Plympton House, Plympton 48
Portsmouth Corporation Mental Hospital..... 45
St. Andrew's Hospital, Dollis Hill 49
St. Andrew's Hos., Northampton. 46
St Luke's Hospital for Mental Diseases 45
Shaftesbury House, Formby-by-the-Sea 47
Springfield House Private Asylum, Bedford 45
Stretton House, Church Stretton. 48
The Grange, near Rotherham 46
Vale of Clwyd Sanatorium 49
Warneford Asylum, Oxford 45
Wye House, Buxton 46

FINANCIAL, &c.:—
Equitable Reversionary Interest Society 43

HEALTH RESORTS, BATHS, &c.:—
Caterham Sanitarium 49
Droitwich Brine Baths..... 49
Peebles Hotel Hydro. 49
Smedley's, Matlock..... 49

HOSPITAL, INFIRMARY, SANATORIUM, &c., VACANCIES.. 49-51

HOUSE & ESTATE AGENTS:—
Richards, Arundel-street, Strand. 53

LIFE & FIRE ASSURANCES, &c.:—
Medical Sickness and Accident Society 27
Prudential 43

MEDICAL ACCOUNTANTS, &c.:—
Turner..... 52

MEDICAL AGENTS:—
Fieldhall, Limited 53
Manchester Clerical, &c., Association 53
Medical Agency..... 53
Seedes, J. C. 53
Peacock & Hadley 53
Turner..... 53

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine 43
West London Post-Graduate College 43

NURSES' ASSOCIATIONS:—
Co-operation of Temperance Male and Female Nurses..... 44
Female Nurses Association 44
General Nursing Association 44
Hospital for Sick Children..... 44

NURSES' ASSOC. (Continued).
London Nurses' Association 45
London Temperance Nurses Co-operation 45
Male Nurses Temperance Co-operation 44
Mental Nurses Association 43
Mental Nurses' Co-operation 44
New Mental Nurses' Co-operation 43
Nurses' Association 45
Nurses' Co-operation..... 44
Registered Nurses' Society 45
St. John's House 44
St. Luke's Hospital..... 44
Temperance Association of Male Nurses, Ltd. 44

OFFICIAL NOTICES:—
City of London Lying-in Hospital. 43
George Henry Lewes Studentship in Physiology 55
London School of Tropical Medicine 43
Queen Charlotte's Lying-in Hosp. 43
Walmsley—Change of Surname .. 43
York-road General Lying in Hos.. 43

PARTNERSHIPS & PRACTICES. 52

RAILWAY & STEAMSHIP CO.'S.:—
New Zealand Shipping Co..... 43

TUTORS & LECTURERS:—
Beckton 43
Schnelle—Stammering ..... Cover 1
Weymouth 45

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—Invalid Carriages 7

BOTTLE MERCHANTS:—
Isaacs 42

CARRIAGES, MOTORS, &c.:—
Armstrong—Liveries 53
Belsize, Eastcheap—
Belsize 10/12 h.p., two-seater 53
Caversham Motor Co.—De Dion 8-10 h.p., &c. 53
Offord & Sons—Ford Cars 7
Seabrook Bros.—R.M.C. Coupes.. 53
Stelastic Tyres, Ltd.—
Stelastic Shrouded Steel-Studded Tyre..... 7
9, Victoria-crescent, Eccles—
Austin 10/14, 1914, Brougham 53

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Byno Cascada..... 21
Bynogen ..... Cover iv
Solurol 20
Allenburys Castor Oil 40
Angier Chemical Co—
Angier's Emulsion 15
Anglo-French Drug Co.—
Supsalvs, &c. 28
Battley & Watts—
Battley's Liquors..... 34
British Oxygen Co.—Oxygen 38
Browning & Co.—Semproilin Emulsion with Salol ..... Cover iii
Bullock & Co.—
Papaina Porci..... 54
Acid Glycerine of Pepsine 54
Burroughs Wellcome & Co.—
Soloid Brand Products 24
Hypoloid Brand Products 25
Christy & Co.—Glyco-Heroin 39
Clay, Paget & Co.—
Glycolactophos 38
Ermamic Co.—Kinsol Medicated Toilet Soap 38
Fellows' Compound Syrup of Hypophosphites 20
Gale & Co.—Compound Syrup of the Glycerophosphates, &c. 40
H. K. Mulford Company—
Biological Products 17
Heppells—Urodonal, &c. 18

CHEMISTS—(Continued).
Hogg & Son—
Protein Nerve Food 41
Humphrey Taylor & Co.—
Junora 35
Macfarlan & Co.—
Chloroform 38
Ether 38
Listerian Dressings and Catguts 38
Maltine Manufacturing Co.—
Maltine, &c. 23
Mertens—
Nourry's Iodinated Wine 32
Cacodylate of Sodium 32
Enésol 32
Parke, Davis & Co.—
Glaseptic Ampoules of Sterilised Solutions for Hypodermic Use 16
Raimes & Co.—Slinger's Nutrient Suppositories 40
Richards & Sons—
Lactopeptine 54
Saccharin Corporation, Ltd.—
Phytin, &c. 31
Squire & Sons—
Terperoin Products..... 29
Vinolia Co.—
Eau de Cologne des Glaciers.... 12
Wilcox, Jozeau & Co.—
Riodine 39
Zimmermann & Co.—Subitol..... 30

DISINFECTANTS:—
Boots Pure Drug Co.—
Chloramine-T 14
Chloramine T Gauze 14
Condy's Fluid..... 6
Lysol, Ltd.—Lysol 30
Quibell Bros.—Kerol 39
Sanitas Co.—
Sanitas Fluid 28
" Powder..... 28
Willows, Francis, Butler & Thompson—Lysol ..... Cover iii

FOODS:—
Aylesbury Dairy Co.—
Humanized Milk 41
Benger's Food 11
Blatchley's Diabetic Preparations 40
British Milk Products Co.—
Sanaphos 13
Cadbury's Cocoa 27

FOODS—(Continued).
Carnrick & Co—
Liquid Peptonoids 22
Dry Peptonoids..... 22
Chymol Company—Chymol 35
Freemans Real Turtle Soup 42
Hewlett & Son—
Virophos 41
Hommel's Hematogen..... 32
Savory & Moore—
Peptonised Milk Preparations.. 35
Southall Bros. & Barclay—
Vitafer 42
Valentine's Meat-Juice.... Cover ii
Vi-Cocoa 41
Wander, Ltd.—Ovaltine 19

FURNITURE, &c.:—
Carter—Furniture for Invalids and Hospital Supplies 38

HOSIERS, &c.:—
Wolsey Underwear Co.—
Wolsey Underwear 9

MED. & SURG. APPLIANCES:—
Bailey & Son—
Artificial Limbs, &c. 27
Davis—Catgut Sutures 7
Down Bros.—Apparatus for saline Infusion 37
Leslies, Ltd.—
Leslies' Zincoplast, &c... Cover ii
Millikin & Lawley—
Osteology, &c..... 4
Robinson & Sons—
Gamgee Tissue 42
Salmon Ody, Ltd.—
Trusses, &c. 8
Schaerer—Hawley's New Orthopædic Table, &c. 6
Timpson & Co.—Thermometers .. 36

MINERAL WATERS, &c.:—
Contrexéville Pavilion 42
Del Mar—Villacabras 54
Del Mar—Vittel 41
Idris & Co.—Tonalka 34
Perrier 40

MOTOR SPIRIT:—
G. L. I. Co.—Carburine Motor Spirit ..... Cover ii

OPTICIANS:—
408, Strand—Medical Microscope.. 51
Watson & Sons—
Microscopes 7

STATIONERY, &c.:—
City Printing & Stationery Co.—
"Twinwriter" Manifold Book.. 4

STOVES, &c.:—
British Commercial Gas Association—Gas Fires, &c. 8

TAILORS, BOOTMAKERS, &c.:—
Dowie & Marshall—
Hygienic Bootmakers 36
Evans & Co.—
Service Uniforms..... 6
Harry Hall—Service Dress..... 55

TOBACCO, CIGARS, &c.:—
Ardath Tobacco Co., Ltd.—
State Express Cigarettes 9

VACCINE LYMPH:—
Chaumier's Calf Lymph 4
Jenner Institute for Calf Lymph.. 4
Renner's Calf Lymph Establishment 4

WINES, BEER, SPIRITS, &c.:—
Ackerman Laurance—
Brut Royal 42
Humphrey Taylor & Co.—
"G. B." Diabetes Whisky 35

X-RAY, &c., APPARATUS:—
Dean & Co.—
Diathermy Apparatus 10
Medical Supply Association—
Grevillite Improved Diathermy Apparatus..... 37
Siemens Brothers & Co.—
Skiafix..... 10

MISCELLANEOUS:—
Box 9, Knightsbridge—Car for Hire 52
Grieve—Instruction in Cultivation, Marketing, &c. 55
Hope Pearse—
Gwathmey Portable Apparatus. 4
No. 124, L.O., Strand—
Charge of Gentleman's House .. 52
No. 128, L.O., Strand—
Shorthand Typist 52

An Address
ON
THE SPIRIT OF MEDICINE.[1]

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LADIES AND GENTLEMEN,—We have been strangers to each other until to-day (I am addressing myself to students only), but you know that this is not my first appearance at Charing Cross Hospital. When our Dean invited me to address you at the opening of another session I realised that it is fully 40 years since I joined the school, not as a student but as a teacher—but nevertheless a student. Let me say at once to you that I have been a student ever since, and that I am a student still, for I hold that it is never too late to learn; if I might have my time and choice again, I would change places with one of you to-day. The best wish I can offer you is that you all may be ready to say the same yourselves after 40 years of professional life—perhaps from this very place.

It occurred to me to ask ourselves, you and me, how it comes that one can give voice to this sentiment? What is it that attracts us to the study of Medicine—and, once we are engaged in it, binds us so firmly to it? I answer without hesitation—*two* influences: the Call of Nature and the Call of the Heart.

THE CALL OF NATURE.

The Call of Nature is strong in all of us from the dawn of intelligence. It is as natural for a child, when infancy is past, to ask "Why?" as to cry for food; the one craving is as strong as the other. We are all naturalists at first. Holmes puts this fact plainly when he writes: "From a very early age the child desires to know the why and the wherefore of things ..... and asks innumerable questions which make him the terror and despair of his parents." And let us observe that this inquisitive instinct of the child and boy is a craving for natural knowledge for its own sake, not with an ultimate object; just as he eats because he is hungry without any notion of the physiological use of food. If pressed on the subjects he would give us to understand that both to learn and to eat fill him with a sense of satisfaction and contentment.

In a few years we find the lad an active naturalist with his birds' eggs, butterflies, and silkworms, not to speak of his domestic fauna; or an embryo chemist and physicist building crystals, distilling coal-gas through a "churchwarden" pipe, filling soap-bubbles with tobacco smoke which burst like shells over his younger brother's pasteboard fortifications, leaden soldiers, and tin ships. Other attractions and necessity presently compel the majority of lads to abandon these delights. For the rest there is open a choice to follow one of the applied sciences, as they are called—the practical arts based on natural science. Medicine is one of them, and the young man's father, respecting the bent of his mind and recognising the usefulness and honourable status socially of our profession, where there is also good prospect of a reasonable and independent livelihood if it be honourably practised, confirms his selection of it. It is in this way surely that you have been brought to Charing Cross Hospital to-day—not, I am sure, for purely commercial ends, which it is to be feared have been promoted by the panel.

With his entry as a medical student the young naturalist finds himself in a new world of wonder and delight. Which of us who are your seniors can forget his feelings when he was introduced to the microscope in practical biology and histology; to the demonstrations of physiological actions and chemical physiology; to the delicate coördination and self-regulating mechanisms of the different functions? Even the structure and the architecture of the dry bones and the associated muscles furnished us with problems of scientific interest. Every day of his years of preliminary study the future physician and surgeon is increasing the range of his knowledge of nature, every day adding to that same sense of satisfaction with knowledge that he felt as a child. I have had friends who spent a few years in the study of Medicine for little or no other purpose than to taste and preserve this feeling. And, indeed, the medical student as long as he is learning of the normal body only may never have occasion, any more than has the child, to put the question directly to himself: "What is the use of all this?"

At the beginning of a more advanced session the answer comes home to him before he has inquired. He is introduced to pathology. He takes up practical morbid anatomy and finds that the delicate cells, the vessels, the viscera that he has learned to know in their intimate structure and uses, the blood in its different elements, the mechanisms which he has studied at work, may and do become disordered and diseased—structurally changed, functionally disabled. In many instances, particularly when he is introduced to bacteriology, he discovers the agents of disease side by side with the morbid changes. He has been no stranger to illness in everyday life, but he gets a shock when he sees these visible and tangible evidences of damage before his eyes. But the instinct of building—of mending, which Holmes names the constructive instinct of every young person, possesses him and gives him heart. He bethinks himself of what he has learned side by side with physiology—something of pharmacology, the local and general actions of drugs on cells, vessels, and nervous and other tissues; and he wonders whether these could not be employed to help Nature in her need, by moderating or arresting disease. Are repair and recuperation of functions possible? With specimens of disease before him he may well question how far the value of artificial interference extends. It is at this stage of his work that another aspect of pathology is revealed to him: a fresh conception of disease is framed in his mind. He is taught to look again and to consider well, and he finds that a great part of what he has been regarding as a morbid or destructive change of the tissues is itself repair, healing. Nature has been mending on her own account—spontaneously, and this in many ways and in many forms. And now the student has reached a position as a naturalist which enables him to comprehend one of the great laws of Nature. He has before his eyes evidence of the Struggle for Existence between the body of man and the countless influences of possible damage that surround and threaten it. He comes to understand what is meant by the Survival of the Fittest: what we signify when we speak of the evolution of life and living things by vicissitude and trial. He learns that there is no such state as rest in Nature: that life is essentially movement and change; and that it is by this struggle that the progress of man is assured—progress towards a destiny that is obscure and still remote in the clash of the many and various influences, favourable and unfavourable, in his environment.

This conception of life and disease opens up to him a new and vast field of nature study. He must acquaint himself not only with microbic agents of pathological change, but with mineral, vegetable, and animal poisons; with foods; with the actions on the body of cold, heat, weather, seasons, and climate; of physical stress on muscles, heart and lungs; and of occupation and exercise. These influences lie outside man, yet constantly affect him; indeed, threaten his health and life; and with them the future practitioner must be familiar. Consider, in passing, the delight and satisfaction of the intelligent mind that is furnished—even if it be but moderately furnished—with such knowledge. Compare the pleasures of life to him with those enjoyed by the laity or even by the lawyer or the lawyer-politician, who is understood in these days to know nothing about science.

With this sense of the relation of man to his environment it comes as an inspiration to the student that he will presently have to take a position, a stand in life, between the one and the other; to do nothing less than regulate, check, neutralise, moderate or interrupt, on the one hand, or on the other hand to utilise, as circumstances may demand, the impact of the one on the other. He will have to

[1] Delivered to the students of Charing Cross Hospital Medical College (University of London) at the opening of the winter session of 1916.

help his individual patients in the struggle for existence, to keep or to make them fit for survival. And by doing so and otherwise (grander purpose of his work still) to promote in however small degree the material evolution of the race. All of which knowledge and intelligent endeavour are those of an earnest naturalist—responding to the Call of Nature. At Charing Cross you have before you as your model the memory of one who was not only among the greatest of English naturalists of his own or other time, but the champion of the doctrine of evolution in its delicate infancy—Huxley, who sat like one of yourselves a student here at the opening of the session on Oct. 1st, 1842. You cannot all be Huxleys, but you can all strive in the many opportunities which Medicine will afford you (for every case of illness is a problem in natural science, and presents some difficulty which it is a delight to overcome) to maintain the reputation which he left behind him and to the school.

THE CALL OF THE HEART.

In time the medical curriculum will have introduced the student to the out-patient room of the hospital—to disease in being, to sickness, suffering, disablement, and misery, variously expressed and variously borne. And now the call of humanity is at his heart. Each case is an occasion for sympathy, an opportunity to help, to benefit—that is, to do good. This motive is quite other than the stimulus that is provided by the study of Nature; it is as strong and active in the unprofessional and the ignorant. But as clinical training proceeds it converges with that other and fits in, merges with it, quickening and sustaining it, and with it constituting the Spirit or Soul of Medicine.

Your sympathy with your patient in distress rouses in you a fresh interest in disease. It prompts you to inquire in a new and necessary direction—into the causes of the patient's illness. Here your taste, training, and equipment for exact investigation will find almost unlimited scope for exercise. This new subject involves nothing less than an inquiry into the man's personal history—his whole record, to trace if possible the relation of his constitution, his bodily soundness or its unsoundness, and in particular the relation of his present illness, to his inheritance, up-bringing, occupation, to his disposition, his habits of living and exercise, his fortunes and his misfortunes past and present. The field of your sympathy enlarges as your investigation of his case becomes more and more intimate; your heart is touched as much by the causes of his disease as by his bodily sufferings; by the history of misfortune, poverty, and misery that led on to illness; and even his indiscretions and follies will be regarded in a new light. For you find that you are studying in concrete form, in the living man, an instance of the struggle for existence. You feel that other than material influences and micro-organisms are among the agents of disease, degeneration and death, and that in your combat with these you will have to reckon with worry, poverty, misery, and men's evil passions.

This consideration enables us to recognise our professional ideal on its highest planes. Why may we not, by standing between this man and the unfortunate circumstances of his life that have landed him in bodily disease and social disability, and by throwing our sympathy as well as our cultivated knowledge into the struggle, promote his moral as well as his bodily welfare, and help him to recover his character as well as his health? The family doctor has constant opportunities special to his professional relations—by organised charity, by personal devotion, by advice, by warning, by reproof, as the case may demand, to help the man to choose the better part. And, as a higher aim still, why may we not by investigation and determination of the effects of moral as well as of material influences on the health, fitness, success and character of mankind in general promote the spiritual evolution of the Race? In this Medicine takes its share with the other professions, and with all, professional and unprofessional, the statesman, the schoolmaster, the parson, who have the welfare of the people at heart. This is humanity indeed. For there is at work on the earth a moral evolution of man as surely as a material or bodily evolution—slow indeed, and at times apparently interrupted or ended according to our imperfect notions of time. This world of ours is a place of trial, of temptation, of probation, of receiving and accounting for talents and opportunities. We are blessed with a power of self-control manifested in our will, a power of choosing between right and wrong, of overcoming evil influences around us, as surely as we are provided with natural resistance to meet physical forces, dangerous extremes of temperature, and infectious organisms—

> "Our wills are ours, we know not how,
> Our wills are ours to make them thine."

Here is a prospect! Do not be discouraged by its vastness, its range, and its responsibilities. You will have to take and fill only a small place in it with others. But however small and humble your position in Medicine, if the true Spirit be there, you will be doing what I have called your share. Most likely it will be a general practice among the poor—securing the safe birth and rearing of children; advising on the exercise, training, and occupation of youths; counselling the middle-aged and aged on every subject that bears on their health and through it on their happiness. Or you may choose the service of Public Health, and give your life's work to the same subjects in a collective instead of an individual way. Or, again, the Medical Services of the Navy or the Army or the Colonies may call you; and in what do the duties of these consist but in giving your whole heart, and it may be your life, for others—for their bodily and moral advancement. And this you will do with a sense of humility which well becomes the student of Nature. Having learned so much, you will know how much more remains to be learned; you will know your own ignorance. How can anyone that attempts to appreciate the relation of evolution to time be other than humble over his own contribution to it?

It is a far cry from your entrance at a medical school to eugenics—from the study of bones and the elements of biology and animal chemistry to the practical problems of therapeutics and public health. But I have thought it well to set before you at the start a vision of the ever higher and ever-widening path you will follow, step by step, if you are faithful to the Spirit of Medicine, until you have attained the worthiest object of worldly desire: the betterment of your fellow men. And I have tried to keep this object clearly before you for a reason to which I will now briefly refer as it is apposite to the present time.

Is scientific interest in disease sometimes so strong that it drowns the Call of the Heart? Is it possible that the occasions, opportunities, and urgent need of sympathy are ever disregarded by the profession; that patients become "cases" and cases only? Surely never in this country. Such indifference is cruelty; and we are not cruel. But it is not so everywhere.

I came to Charing Cross from long study in Vienna under German influence in laboratories and in hospitals when the Franco-Prussian War was nearing its end in a German triumph. Investigation and clinical demonstration of disease were pursued in the highly organised order characteristic of the people. But the whole spirit of their institutions was materialistic. The hospital patients were spoken of collectively as *das Material*. And what struck a British-born visitor was both the personal indignities to which certain patients were subjected and the contemptible spirit in which they submitted to them. An English man or woman would have revolted against such treatment, at whatever cost to health and recovery. Already in those days the sense of humanity in the German appeared to be blunted. Already there existed in him a degree of that disregard for the happiness of others and for human life which was ready, as General Smuts has said, "to turn science and economic organisation into instruments of wrong, crime, and ruthless disregard of common morality and Christianity," and which, fed upon worldly success, has developed into his cold-blooded ferocity of to-day. For it would appear that it was not alone excess of scientific interest that made the German surgeon indifferent to the amenities and even the decencies of practice. The German is essentially rude and cruel.

Back in my own country I found that the good name of Charing Cross Hospital rested not alone on the fame of Huxley, its great scientist, scholar and naturalist but on the records of the many old pupils who had given the best of their lives to their patients; and that, outstanding among these, never forgotten and much honoured, were Livingstone,

naturalist and explorer, as well as medical missionary, and thus a link with Huxley; and Llewellyn, who refused to leave his patients at the sinking of the *Alabama* and went down with them and the ship. Here is a noble instance of loyalty to the Call of the Heart! It stands out, no doubt, in part because the occasion was historical, and Llewellyn's devotion to principle suddenly tried and instantly proved. But those noble soldiers just named by the Dean whom from to-day you are proud to call fellow students, and your teachers at the different fronts, physicians and surgeons of the hospital, whom I am proud to reckon among my intimate friends and colleagues, have been and are as faithful to duty in the present war. If we may not pray, as some teach, for success of the Armies of either side, at least we may pray for those friends and others whose purpose is the saving, not the taking, of life. And, apart from such abnormal times, let me tell you that the hundreds of Charing Cross men in general practice whom I have known have by their self-sacrifice in social circumstances almost as taxing as war—in their whole lives spent in the midst of poverty and misery and disease—proved just as loyal to the highest ideals of the profession. Many of you have before you in practice trials of every kind and degree (they are inseparable from professional work)—anxieties, disappointments, vexations, temptations in your weariness to do less than your duty, ingratitude; not to speak of dangers to health, soundness and usefulness, and life. Meet such trials by preserving in your dealings with patients the true balance of head and heart. What I have tried to present to you I will sum up and again commend to you in words which at an early stage of my own professional career I had the good fortune to hear fall from the lips of Sir James Paget: "He that will seek the Truth earnestly, with patience and humility, in the fear of God and the love of man will surely find it."

SOME OBSERVATIONS ON DYSENTERY.

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A DETAILED account of the intestinal lesions would be out of place in this paper. For an excellent description the reader is referred to Castellani and Chalmers's "Manual of Tropical Medicine." It appears, however, necessary to emphasise certain facts with regard to the pathology of the disease.

(A) From the pathological aspect the disease can be divided into two more or less distinct stages. The first is that of uncomplicated entamœbic activity, the second of combined action of the entamœbæ and bacteria.

Appearance of large intestine in early stages.—At this period we are confronted with the results of the invasion of the submucous and muscular coats of the large intestine by the E. histolytica. The appearance of the intestine is characteristic. Projecting from the mucous membrane over the affected area are numerous nodules about the size of a small pea. These are usually surrounded by a ring of dilated vessels and are produced as the result of the localised serous exudate around the invading parasites. Some of the nodules are capped by a little dark-coloured slough, and in many this slough will have been cast off so that the nodule is transformed into a small ulcer. These ulcers are of varying depth; some involve the mucous membrane alone, others extend into the submucous and still others into the muscular coat, occasionally even reaching the peritoneum. At this stage the ulcers are flask-shaped, the opening being small and the mucous membrane undermined to a considerable extent. The areas of mucous membrane lying between these nodules and ulcers are normal in appearance. Microscopical examination shows that the primary exudation around the entamœbæ is mainly serous in character. When ulceration has taken place it changes in type, becoming more cellular, but leucocytic accumulation is never a prominent feature at this stage. The blood-vessels in and around the affected area are dilated, but it is rare to see any signs of interstitial hæmorrhage. Entamœbæ can usually be detected in the depths of the submucous coat. The tissue cells show degenerative changes, chiefly vacuolation.

Clinical features in early stages.—This stage of the disease is characteristically apyrexial. Acute cases are met with in which pyrexia is a feature from the onset of the disease, but these are exceptional. The stools are scanty and gelatinous, consisting entirely of blood and mucus, with no fæcal admixture.

Appearance of intestine in later stages.—The characteristic feature of this period is a secondary bacterial invasion of the originally amœbic ulcers. These extend rapidly and become very irregular in outline, the mucous membrane of the affected portion of the bowel becomes uniformly inflamed, and the picture may become almost indistinguishable from that seen in a severe case of bacillary dysentery. As a rule, however, it is possible to determine the origin of the lesions from the persistence of the characteristic amœbic ulcers here and there, usually in the cæcum, and from the fact that the diphtheroid membrane so characteristic of the latter disease is not a prominent feature. The microscopic picture has by this time considerably altered. The blood-vessels are markedly dilated, there is a dense accumulation of leucocytes, and small hæmorrhages can be detected in the mucous, submucous, and occasionally in the muscular coat. The extent of this secondary infection is variable. Occasionally post-mortem examination of the intestine shows numerous fully formed amœbic ulcers with no sign of bacterial invasion having occurred. Usually, however, its effects are to be seen, and in the majority of cases the characteristic lesions are well marked.

Clinical features in later stages.—The bacterial invasion of the intestine wall leads to a change in the clinical picture. The disease, characteristically apyrexial in its earlier stages, becomes pyrexial, and the stools may change in type, becoming more abundant and fluid.

It is quite clear that bacteria must play a very important part in the majority of cases of amœbic dysentery, as it is obvious that the deeper tissues of the intestinal wall become exposed to the action of bacterial agents just as soon as an ulcer is formed at any spot. The pathological and clinical manifestation resulting will, however, depend upon the capability for virulence possessed by the organisms in question. It is not uncommon to find a picture of uncompleted entamœbic activity even in patients dying at a somewhat advanced stage of the disease. Usually, however, even when death occurs early, the characteristic bacterial lesions will be found either at one or other spot or more or less uniformly over large areas of the intestinal wall.

(B) The pyrexia so frequently observed in the later stages of amœbic dysentery is usually a toxic phenomenon, due to bacterial activity in the gut wall. It is moderate in degree and of the usual hectic type. Occasionally, however, the temperature is maintained at a comparatively high level, and hæmoculture in such cases frequently shows the presence of a bacillæmia. This is attributable to the bacterial invasion of the deeper tissues of the intestinal wall through the ulcerated surface. Organisms growing in such surroundings may, even if normally saprophytic, become sufficiently enhanced in virulence to enable them to penetrate into the blood stream. A series of 30 blood cultures carried out on patients with maintained pyrexia gave, regardless of those cases in which a coexistent paratyphoid infection was demonstrated, three positive results. The clinical features of these cases, with an account of the organism isolated, are included in the following notes:—

CASE 1.—Private, aged 19. Patient admitted to hospital with a temperature of 102° F., which, with a morning remission to 101°, persisted for three days. Bowel motions averaged nine in the 24 hours, consisted of blood and mucus, and contained E. histolytica. Hæmo-culture on the third day yielded B. coli communis. On the morning of the fourth day the temperature sank to 99°, and the patient made an uninterrupted recovery.

CASE 2.—Sergeant, aged 21. In this case the temperature was of a hectic type, rising to 102° F. at night and falling to normal in the morning. History of severe dysentery with passage of blood and mucus. From date of admission the bowel motions averaged five to nine in the 24 hours, were fæculent in character, containing mucus but no blood. E. histolytica present. Hæmo-culture on the third

day yielded an unidentified bacillus with the following characters.

Morphology.—Actively motile, Gram-negative, non-sporing bacillus.

Cultural reactions.—Does not liquefy gelatin, produces acid in glucose. No change in lactose, mannite, dulcite, saccharose, or maltose. Slight pellicle in peptone water; no indol.

Agglutination reactions.—Very feeble clumping with patient's serum in a dilution of 1 in 50 in 12 hours. Not clumped by anti-dysenteric, typhoid, or paratyphoid sera.

Pathogenicity.—The organism is non-pathogenic to guinea-pigs by intraperitoneal injection, the animal recovering after a few days' illness.

This organism has been encountered on several occasions in dysenteric stools.

In this case the pyrexia lasted for 10 days, after which the patient gradually recovered. The remaining case which yielded a positive result was a case of bacillary dysentery, and will be referred to under that heading.

(C) A point of extreme practical importance is the comparative frequency with which amœbic ulcers are detected in the cæcum of patients who have never complained of dysenteric symptoms. In the series of post-mortem examinations performed by Lieutenant Bartlett in No. 21 General Hospital the condition was not infrequently detected in patients dying from gunshot wounds or other causes. These latent cases constitute a serious problem, not only because the disease may at any time become active, but because each such case is a possible source of infection to others.

Parasitology of Amœbic Dysentery.

During the examination of a series of dysenteric stools two types of entamœbæ will be met with, Entamœba histolytica and Entamœba coli, the former highly pathogenic, the latter harmless. It requires considerable experience to differentiate the two types in the unencysted stage; when encysted the appearance of each is characteristic. Examination of the stool immediately after it has been passed is the ideal procedure, the characteristic movements of the parasite facilitating its detection. When the stool cools the amœboid movements cease, and it therefore becomes more difficult to find the organism. In doubtful cases it is necessary to stain films, and this is always advisable for exact study. The characteristics of the two entamœbæ may be briefly set out as follows.

Entamœba histolytica.—Free form.—Size varies much (15 μ to 60 μ). The ectoplasm is well differentiated from the endoplasm. The protoplasm is finely reticulated, giving the appearance of minute granules. There are usually one or two vacuoles, but occasionally vacuolation may be very marked. The parasite is actively phagocytic, and is frequently seen to contain red blood corpuscles, pus cells, &c. This is a characteristic feature. Amœboid movements are active in comparison with those of E. coli. The nucleus is small and vesicular in type, its chromatin being arranged around the inner surface of the nuclear membrane in fine granules or bars. There is usually a well-marked central karyosome, showing in well-stained specimens a minute centriole. Previous to encystment the entamœbæ become much reduced in size (10 to 15 μ). At this stage the protoplasm is frequently seen to contain deeply stained bodies of a chromatinic nature known as "chromidia." These chromidia are characteristic. I have never seen them in E. coli, though other observers have described their occurrence in the latter form.

Encysted form.—The encysted form of E. histolytica is, from the number of contained nuclei, known as E. tetragena. This form was first described by Viereck (1907), who thought he was dealing with a distinct species. James (1914) showed that this form was simply a stage in the life-history of E. histolytica. The cyst is exactly spherical in shape, but the cyst wall being very thin, it is apt to become distorted, and may so appear in stained films. The nuclei are characteristically four in number and may be grouped together in the centre of the cyst or arranged in pairs at opposite poles. The "chromidia" described as occurring in the free forms are also frequently observed in the cyst. Cysts containing one, two, or three nuclei may also be met with; these latter forms often show vacuolation of the protoplasm.

Entamœba minuta.—Elmarsian in 1909 observed very minute entamœbæ in dysenteric stools and described them as a new species. James, however, concluded that they represented yet another stage in the life-history of E. histolytica. This form is found in chronic or convalescent cases, and is an example of the reduction which takes place in the size of E. histolytica previous to encystment.

Entamœba coli.—Free form.—Averages 15 μ to 60 μ diameter. The differentiation between ectoplasm and endoplasm is not clear. Vacuolation is usually a very marked feature. Its phagocytic powers, as compared with those of E. histolytica, are apparently weak. It is quite usual for bacteria to be ingested, but I have never seen contained leucocytes or red cells. Amœboid movements are very sluggish. This nucleus differs from that of E. histolytica inasmuch as it is considerably larger, and the peripheral chromatin masses are larger and stain more intensely. "Chromidia" I have never seen either in the free or encysted forms.

Encysted form.—The cyst of E. coli is larger than the tetragena cyst (averages 15 μ to 20 μ in diameter). The limiting membrane is thicker. The fully developed cyst contains eight nuclei, but forms with two, four, and six nuclei also occur. Differentiation from the tetragena cyst is usually very easy.

Treatment of Amœbic Dysentery.

The stage reached by the destructive process in a given case of amœbic dysentery depends upon the promptness and efficiency of the treatment. Administration of emetine brings about death of the entamœbæ and a more or less rapid recovery depending upon the extent to which the intestinal wall has suffered. In certain very acute or neglected cases the colon becomes irretrievably damaged and the patient's recuperative powers so lowered that a fatal result ensues in spite of specific treatment.

It cannot be too strongly urged that as soon as amœbic dysentery is diagnosed, or even if there is any suspicion of the case being of this nature, treatment with emetine should be commenced and a full course given. Partial treatment is highly dangerous. It has been pointed out by Captain J. G. Thomson, R.A.M.C., that the administration of one or two grains of emetine, though destroying the majority of the amœbæ so that they can with difficulty be detected in the stools, frequently leaves a number of the parasites intact, and these living in the intestinal wall not only prevent healing but give rise to the discharge of cysts and the spread of the disease.

In all cases of amœbic dysentery a full course of treatment should be given. This consists of the administration of $\frac{1}{3}$ grain of emetine subcutaneously twice daily for at least 10 to 12 days. Further observations may possibly show that even more emetine ought to be given. By this means, and this means only, can the patient be safeguarded from relapses and the spread of the disease prevented.

Prevention of Amœbic Dysentery.

Amœbic dysentery is spread through the agency of the cysts of E. histolytica. These are never passed in the acute stages of the disease, but may exist in enormous numbers in stools of chronic or convalescent cases. This is a point of extreme practical importance and indicates the necessity for vigorous treatment of all cases. The cysts are, of course, developed from the free forms; emetine destroys the latter, but appears to have no effect on the cysts. If, therefore, sufficient emetine be given to ensure the destruction of all the free forms cyst production is prevented. On the other hand, if the course of treatment be cut short a number of entamœbæ will infallibly escape, and the patient not only becomes liable to relapses but is a danger to the community.

The cysts reach the alimentary canal by means of food infected through the agency of dirt or flies. In this connexion Captain J. G. Thomson has demonstrated the highly important fact that cysts can be detected in the intestinal canal and fæces of flies 18 hours after they have been fed on infective material. Apparently cysts can also live in a fluid medium, such as water or milk, in the absence of a heavy bacterial contamination. It is evident therefore that the prevention of amœbic dysentery amongst the troops depends upon: (1) The elimination of cyst carriers. This

may be attained by early diagnosis and prompt treatment. (2) Efficient protection of food from dust and flies. (3) Efficient and carefully supervised sanitary arrangements in the trenches and in camps. Promiscuous pollution of the soil must be avoided at all costs, and all fæcal matter must be rapidly and completely destroyed so as to prevent access of flies.

Observations on the Pathology of Bacillary Dysentery.

An excellent account of the morbid anatomy of this disease is contained in Castellani and Chalmers's "Manual of Tropical Medicine." It seems to me, however, that certain points with regard to the production of the intestinal lesions require emphasis.

(A) In amœbic dysentery the primary lesions result from the entrance of the parasite into the submucous tissues at numerous points throughout the colon. Necrosis of tissue is at this stage limited to foci corresponding to the seats of entamœbic activity. In bacillary dysentery the course of events is radically different. The ulceration does not spread from scattered foci in the gut wall, but is the result of the action of a bacterial toxin which exerts its effects uniformly throughout the affected portion of the bowel. The picture of isolated ulcers separated by areas of healthy mucous membrane, which is so typical of amœbic dysentery, is never found.

(B) Microscopical examination of suitable specimens shows that the earliest pathological change is dilatation of the blood-vessels throughout the intestinal wall and a marked exudation into the submucous coat. This exudation is not, as usually described, serous in character, but is sero-hæmorrhagic. In other words, while the submucous layer is markedly œdematous numerous hæmorrhages are to be seen throughout its substance. *This submucous hæmorrhage is invariably well marked and is highly characteristic of bacillary dysentery.* The dilation of the vessels mainly affects the veins and is not limited to the submucous coat. The subserous veins are also dilated, and the mucosal vessels are in a similar condition. A prominent feature at this stage is the absence of leucocytes. Later, when sloughing of the mucous membrane starts, these begin to accumulate and the vessels will be seen to contain numerous polymorphonuclear leucocytes which are undergoing diapedesis into the tissues.

(C) The ulcers produced in this disease are typically shallow and irregular; they may be very extensive and sloughs visible to the naked eye may be discharged in the stools. Ulceration may extend deeply into the coats of the intestine so as to involve the submucous and muscular coats, but in my experience this is exceptional. The islands of mucous membrane between the ulcers are œdematous and hæmorrhagic, and are usually covered by a ragged diphtheroid membrane. Section of the intestinal wall at this stage frequently shows an extraordinary degree of activity in the phagocytes, especially in the large mononuclear varieties. Many of them are seen to be loaded with blood pigment, while it is not uncommon to come across a cell with a contained red corpuscle. The connective tissue cells will be seen in various stages of degeneration, and in this respect vacuolation is a prominent feature, especially in the fibroblasts.

(D) It has been shown that bacterial invasion of the blood stream is an occasional complication in the later stages of amœbic dysentery. That it can also occur in the bacillary form is shown by the following case.

CASE 3.—Corporal, aged 24. Patient admitted to hospital with a temperature of 102° F. History of a week's illness with severe dysenteric symptoms. Stools on admission 4 to 12 in 24 hours, containing fluid mucus and blood. E. histolytica absent; B. dysenteriæ not isolated. Agglutination carried out on the day after admission showed agglutination of Shiga bacillus in a dilution of 1 in 800 in 12 hours. Feeble agglutination of Flexner bacillus in a dilution of 1 in 50 in 12 hours; none in higher dilutions. Hæmo-culture on the day after admission yielded a somewhat anomalous bacillus coli which fermented saccharose. On the fourth night the temperature reached 107° and the patient died. Post-mortem examination showed in the large intestine the typical picture of advanced bacillary dysentery, cloudy swelling of liver, spleen, and kidneys, and lobar pneumonia of left lung.

Apart from the bacillæmia, an interesting feature of this case is the high agglutination titre reached by the serum in a patient who, as far as could be gathered, had been ill only ten days. The pneumonia evidently was the cause of the hyperpyrexia and death.

Observations on the Bacteriology of Dysentery.

An historical review of the work done on this subject would serve no useful purpose and would fill many pages. For an excellent description the reader is referred to Flexner's article in Allbutt's "System of Medicine."

The following notes contain a short account of some organisms commonly encountered in dysenteric stools, with some observations on their pathogenicity. In connexion with this subject I submit the following report on the microscopic and cultural examination of 300 dysenteric stools. The specimens examined were not in any way selected; cultures were prepared whether the disease was clinically amœbic or bacillary, whether entamœbæ were or were not detected. The following facts will serve as an introduction to this section.

(A) During the three months September, October, and November, 1915, the dysentery occurring amongst the troops of the Mediterranean Expeditionary Force was almost altogether of the amœbic variety. During this period dysentery bacilli were isolated from only 9 per cent. of the cases examined. From December, 1915, to March, 1916, the total case incidence was much reduced, amœbic dysentery declined and bacillary dysentery became more prominent. Of the cases investigated during this period 20 per cent. were of the bacillary type.

(B) The bacillary dysentery never assumed an epidemic type; the cases were sporadic, not limited to any particular area or any particular unit.

(C) A certain number of mixed cases were encountered, showing simultaneous infection with E. histolytica and one or other member of the dysentery group of organisms. The following is a summary of the results obtained during the examination of the 300 cases under review.

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Of those cases in which neither entamœba nor dysentery bacilli were detected the majority were almost certainly amœbic in origin. Most of the patients had received emetine prior to admission, and the response to this treatment was sufficient proof of the nature of the disease, though entamœbæ could not be detected in the stools. A feature of almost all the stools examined was the large number of non-lactose-fermenting organisms developing on MacConkey plates. The majority of these are certainly to be regarded as harmless saprophytes developing luxuriantly in a suitable environment.

Bacillus dysenteriæ.—Organisms of this class were isolated from 31 cases, 19 yielding B. Shiga Kruse and 12 yielding organisms of the mannite-fermenting type.

B. Shiga Kruse.—It seems quite clear that this organism shows a slight degree of motility in young broth cultures. As the culture cools the motility disappears, to return after a short stay in the blood-heat incubator. In cultures over 48 hours old it is impossible to detect any movement. The severity of the disease resulting on infection is variable. In the majority of cases it runs a markedly pyrexial course associated with very severe intestinal symptoms; occasionally, however, the pyrexia is slight and the intestinal symptoms mild. The development of specific agglutinins is constant and may reach a high grade (*vide infra*).

Mannite-fermenting type.—Organisms of this class never show distinct motility. Their virulence is variable. Usually the case runs a course indistinguishable from that of Shiga infections, but not uncommonly the symptoms are those of a severe diarrhœa without passage of blood and without any pyrexia. It appears certain that these organisms can exist

day yielded an unidentified bacillus with the following characters.

Morphology.—Actively motile, Gram-negative, non-sporing bacillus.

Cultural reactions.—Does not liquefy gelatin, produces acid in glucose. No change in lactose, mannite, dulcite, saccharose, or maltose. Slight pellicle in peptone water; no indol.

Agglutination reactions.—Very feeble clumping with patient's serum in a dilution of 1 in 50 in 12 hours. Not clumped by anti-dysenteric, typhoid, or paratyphoid sera.

Pathogenicity.—The organism is non-pathogenic to guinea-pigs by intraperitoneal injection, the animal recovering after a few days' illness.

This organism has been encountered on several occasions in dysenteric stools.

In this case the pyrexia lasted for 10 days, after which the patient gradually recovered. The remaining case which yielded a positive result was a case of bacillary dysentery, and will be referred to under that heading.

(C) A point of extreme practical importance is the comparative frequency with which amœbic ulcers are detected in the cæcum of patients who have never complained of dysenteric symptoms. In the series of post-mortem examinations performed by Lieutenant Bartlett in No. 21 General Hospital the condition was not infrequently detected in patients dying from gunshot wounds or other causes. These latent cases constitute a serious problem, not only because the disease may at any time become active, but because each such case is a possible source of infection to others.

Parasitology of Amœbic Dysentery.

During the examination of a series of dysenteric stools two types of entamœbæ will be met with, Entamœba histolytica and Entamœba coli, the former highly pathogenic, the latter harmless. It requires considerable experience to differentiate the two types in the unencysted stage; when encysted the appearance of each is characteristic. Examination of the stool immediately after it has been passed is the ideal procedure, the characteristic movements of the parasite facilitating its detection. When the stool cools the amœboid movements cease, and it therefore becomes more difficult to find the organism. In doubtful cases it is necessary to stain films, and this is always advisable for exact study. The characteristics of the two entamœbæ may be briefly set out as follows.

Entamœba histolytica.—Free form.—Size varies much (15 μ to 60 μ). The ectoplasm is well differentiated from the endoplasm. The protoplasm is finely reticulated, giving the appearance of minute granules. There are usually one or two vacuoles, but occasionally vacuolation may be very marked. The parasite is actively phagocytic, and is frequently seen to contain red blood corpuscles, pus cells, &c. This is a characteristic feature. Amœboid movements are active in comparison with those of E. coli. The nucleus is small and vesicular in type, its chromatin being arranged around the inner surface of the nuclear membrane in fine granules or bars. There is usually a well-marked central karyosome, showing in well-stained specimens a minute centriole. Previous to encystment the entamœbæ become much reduced in size (10 to 15 μ). At this stage the protoplasm is frequently seen to contain deeply stained bodies of a chromatinic nature known as "chromidia." These chromidia are characteristic. I have never seen them in E. coli, though other observers have described their occurrence in the latter form.

Encysted form.—The encysted form of E. histolytica is, from the number of contained nuclei, known as E. tetragena. This form was first described by Viereck (1907), who thought he was dealing with a distinct species. James (1914) showed that this form was simply a stage in the life-history of E. histolytica. The cyst is exactly spherical in shape, but the cyst wall being very thin, it is apt to become distorted, and may so appear in stained films. The nuclei are characteristically four in number and may be grouped together in the centre of the cyst or arranged in pairs at opposite poles. The "chromidia" described as occurring in the free forms are also frequently observed in the cyst. Cysts containing one, two, or three nuclei may also be met with; these latter forms often show vacuolation of the protoplasm.

Entamœba minuta.—Elmarsian in 1909 observed very minute entamœbæ in dysenteric stools and described them as a new species. James, however, concluded that they represented yet another stage in the life-history of E. histolytica. This form is found in chronic or convalescent cases, and is an example of the reduction which takes place in the size of E. histolytica previous to encystment.

Entamœba coli.—Free form.—Averages 15 μ to 60 μ diameter. The differentiation between ectoplasm and endoplasm is not clear. Vacuolation is usually a very marked feature. Its phagocytic powers, as compared with those of E. histolytica, are apparently weak. It is quite usual for bacteria to be ingested, but I have never seen contained leucocytes or red cells. Amœboid movements are very sluggish. This nucleus differs from that of E. histolytica inasmuch as it is considerably larger, and the peripheral chromatin masses are larger and stain more intensely. "Chromidia" I have never seen either in the free or encysted forms.

Encysted form.—The cyst of E. coli is larger than the tetragena cyst (averages 15 μ to 20 μ in diameter). The limiting membrane is thicker. The fully developed cyst contains eight nuclei, but forms with two, four, and six nuclei also occur. Differentiation from the tetragena cyst is usually very easy.

Treatment of Amœbic Dysentery.

The stage reached by the destructive process in a given case of amœbic dysentery depends upon the promptness and efficiency of the treatment. Administration of emetine brings about death of the entamœbæ and a more or less rapid recovery depending upon the extent to which the intestinal wall has suffered. In certain very acute or neglected cases the colon becomes irretrievably damaged and the patient's recuperative powers so lowered that a fatal result ensues in spite of specific treatment.

It cannot be too strongly urged that as soon as amœbic dysentery is diagnosed, or even if there is any suspicion of the case being of this nature, treatment with emetine should be commenced and a full course given. Partial treatment is highly dangerous. It has been pointed out by Captain J. G. Thomson, R.A.M.C., that the administration of one or two grains of emetine, though destroying the majority of the amœbæ so that they can with difficulty be detected in the stools, frequently leaves a number of the parasites intact, and these living in the intestinal wall not only prevent healing but give rise to the discharge of cysts and the spread of the disease.

In all cases of amœbic dysentery a full course of treatment should be given. This consists of the administration of ½ grain of emetine subcutaneously twice daily for at least 10 to 12 days. Further observations may possibly show that even more emetine ought to be given. By this means, and this means only, can the patient be safeguarded from relapses and the spread of the disease prevented.

Prevention of Amœbic Dysentery.

Amœbic dysentery is spread through the agency of the cysts of E. histolytica. These are never passed in the acute stages of the disease, but may exist in enormous numbers in stools of chronic or convalescent cases. This is a point of extreme practical importance and indicates the necessity for vigorous treatment of all cases. The cysts are, of course, developed from the free forms; emetine destroys the latter, but appears to have no effect on the cysts. If, therefore, sufficient emetine be given to ensure the destruction of all the free forms cyst production is prevented. On the other hand, if the course of treatment be cut short a number of entamœbæ will infallibly escape, and the patient not only becomes liable to relapses but is a danger to the community.

The cysts reach the alimentary canal by means of food infected through the agency of dirt or flies. In this connexion Captain J. G. Thomson has demonstrated the highly important fact that cysts can be detected in the intestinal canal and fæces of flies 18 hours after they have been fed on infective material. Apparently cysts can also live in a fluid medium, such as water or milk, in the absence of a heavy bacterial contamination. It is evident therefore that the prevention of amœbic dysentery amongst the troops depends upon: (1) The elimination of cyst carriers. This

may be attained by early diagnosis and prompt treatment. (2) Efficient protection of food from dust and flies. (3) Efficient and carefully supervised sanitary arrangements in the trenches and in camps. Promiscuous pollution of the soil must be avoided at all costs, and all fæcal matter must be rapidly and completely destroyed so as to prevent access of flies.

Observations on the Pathology of Bacillary Dysentery.

An excellent account of the morbid anatomy of this disease is contained in Castellani and Chalmers's "Manual of Tropical Medicine." It seems to me, however, that certain points with regard to the production of the intestinal lesions require emphasis.

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in the intestines in an avirulent form. In one case an organism of this class was isolated from the stools 17 days before the appearance of dysenteric symptoms. In an actual infection the development of agglutinins is constant. In the above-mentioned case the serum contained no specific agglutinins at the time of isolation of the organism, whereas one week after the appearance of symptoms the sera had attained an agglutinative titre of 1 in 200.

Cases of *double infection* with E. histolytica and dysentery bacilli are invariably severe, showing marked toxic symptoms, frequent bowel motions, and a considerable though somewhat variable degree of pyrexia.

In bacillary dysentery treatment with the specific antiserum, if instituted before the intestine has become extensively ulcerated, yields satisfactory results. A serum of high potency must be employed and prolonged treatment may be necessary.

B. Morgan No. 1.—The cases from which this organism was isolated showed no constant characters, except the presence of a variable degree of pyrexia. In 5 of the cases E. histolytica was also present, in 2 B. dysenteriæ was isolated, and in the remaining 6 neither pathogenic agent could be detected. The experimental infection of animals (per os) tends to show that this organism cannot originate dysenteric lesions. It appears, however, that, in common with other intestinal bacteria, it may attain some importance as a secondary invader of the ulcerated intestinal wall. The agglutination reaction with patients' serum was carried out in 6 cases. In 2 of these a positive result was obtained in a dilution of 1 in 100; the remaining 4 gave completely negative results (*vide infra*).

Streptococci.—The organism was not completely identified, but seemed to be of the ordinary fæcalis type, arresting attention from the large number of colonies developing on MacConkey plates. It was chiefly met with in diarrhœal stools, but also occurred in the discharges from cases of true dysentery. It is probably of no pathogenic importance except perhaps as a secondary invader. This conclusion is supported by its frequent occurrence in typhoidal stools.

B. fæcalis alcaligenes.—This organism was met with in 8 cases, and in 4 of these was the predominating organism. On three occasions it was tested against the serum of the patient with negative results.

Bacilli resembling the dysentery group in morphology and cultural reactions.—These organisms were met with in 15 cases. They are all Gram-negative, non-motile bacilli, fermenting glucose, mannite, maltose and saccharose, and producing no change in lactose and dulcite. Agglutination tests with various anti-dysenteric sera, carried out both on isolation and after repeated subculture, invariably gave completely negative results. Similar organisms have been described by other workers (Ledingham and Penfold, Archibald). The former workers think it probable that they are true dysentery bacilli belonging to a group which can only be differentiated by a serum prepared by immunisation with one or more of their number. I cannot subscribe to this opinion for the following reasons: 1. The organisms were met with in combination with E. histolytica and B. dysenteriæ as well as by themselves; they occurred in simple diarrhœal stools as well as in those from dysenteric patients. 2. Agglutination tests with patients' serum are almost invariably negative; in two cases only was a positive result recorded (*vide infra*). 3. The organisms are not fatal to guinea-pigs by intraperitoneal injection. 4. They have on several occasions been isolated from typhoidal stools. It would seem, therefore, that these organisms are to be regarded as one of the many varieties of saprophytes which flourish luxuriantly in the lumen of the dysenteric intestine.

Unidentified organisms commonly met with in dysenteric stools, both amœbic and bacillary.—Organism No. I. (see table) is particularly interesting, as it was on one occasion isolated from the blood (Case 2, amœbic dysentery) and on another from the spleen post mortem. It is non-pathogenic to guinea-pigs. Subcultures were made weekly for several months, but the organism never varied in its character. Organism No. IV. is at first somewhat similar, but no acid is produced in saccharose, and after prolonged incubation a greenish colour developed on agar slopes. It seems, therefore, to belong to the fluorescens group. Organisms of Types II. and III. are frequently met with. Their sugar reactions frequently vary on subculture; they could not, however, be made to ferment lactose. No. II. was somewhat out of the ordinary inasmuch as it liquefied gelatin. Several of these

No.	Morphology.	Glucose.	Lactose.	Mannite.	Dulcite.	Saccharose.	Maltose.	Indol.
I.	Gram-negative, actively motile bacillus.	A.	—	—	—	— or A.S	—	?
II.	,,	A.G.	—	A.G.	—	A.G.	A.G.	+
III.	Gram-negative, motile bacillus.	A.G.	—	A.G.	A.G.	—	A.G.	+
IV.	Gram-negative, actively motile bacillus.	A.	—	—	—	—	—	+

A. = Acid. A.S. = Slightly acid. A.G. = Acid and gas. — = No change.

Remarks.—Organism No. I.: Not agglutinated by antityphoid serum; pellicle in fluid media. Organisms Nos II. and III.: No clumping with paratyphoid sera. Organism No. IV.: After long subculture greenish pigment; pellicle in fluid media.

organisms have been tested against the serum of dysenteric patients, and the results obtained suggest that though usually purely saprophytic in some cases they may assume a pathogenic rôle as secondary invaders (*vide infra*).

Experimental Dysentery.

The lesions produced in the intestine in bacillary dysentery are recognised; the fact that they are due in all cases to infection with one or other member of the dysentery group of organism may be taken as proved; but the exact manner in which the lesions are produced is not clearly understood. Flexner and Sweet have carried out some important and interesting work on experimental dysentery, as also have Vaillard and Dopter, Strong and Musgrave, and many others. The conclusions of these workers may be summarised as follows.

Infection by the alimentary canal in man is followed by typical dysentery. In animals negative results are almost invariable; mucous diarrhœa may develop, but never true dysentery. Intraperitoneal injection is rapidly fatal to most animals, but none of the characteristic lesions are present. Intravenous injection causes in the majority of animals death from septicæmia. The most interesting results are obtained from subcutaneous inoculation. In rabbits, cats, dogs, and young pigs this experiment is stated to result in the development of intestinal lesions somewhat comparable to those found in the human subject. The sequence of events in experimental animals seems to be as follows (Flexner): Absorption of the toxins from the site of inoculation, excretion into the small intestine through the bile, re-absorption and final elimination through specialised areas of the intestinal mucosa, the toxins in their passage through the capillaries setting up the characteristic inflammatory lesions.

In a small number of experiments carried out up to date I have failed to produce lesions in any way comparable to those of human dysentery. I find that intraperitoneal injection of the Shiga-Kruse bacillus is fatal to guinea-pigs and rabbits. The peritoneal cavity contains a sanious exudate, but the intestines present none of the characteristic lesions. Subcutaneous injection results in the development of paralytic symptoms and eventually death. Post-mortem examination shows cloudy swelling of the glandular cells through the body, acute nephritis, but in none of my cases were the intestines affected.

Serological Tests in Bacillary Dysentery.

It is frequently stated that the agglutination reaction in dysentery is unreliable, that occasionally agglutinins are not developed as the result of an attack, and that even in positive cases the serum rarely attains a high agglutinative titre. My experience does not entirely bear out these statements. The number of sera examined is not sufficiently large to permit of dogmatic conclusion, but the following report of the work done in this direction may be of interest.

The first step was to obtain the upper normal limit in a series of non-dysenteric cases. For this purpose 20 sera were examined; they were obtained from enteric patients, cases of pure amœbic dysentery, and healthy persons. The following results were obtained with B. dysenteriæ (Shiga), the macroscopic method being employed and the time limit four hours:—

14 gave completely negative results in a dilution of 1 in 50.
4 gave distinct agglutination (++) in a dilution of 1 in 50; none in a dilution of 1 in 100.
2 gave distinct agglutination (++) in a dilution of 1 in 50 and a trace (+) in a dilution of 1 in 100.

It was therefore decided to discard the 1 in 50 dilution altogether, and to regard distinct agglutination with a 1 in 100 dilution as proof of a past or present infection with Shiga's bacillus. A similar standard was adopted for the mannite-fermenting strains.

Details of tests.—1. The sera of 9 cases of dysentery, in which B. dysenteriæ (Shiga) had been isolated from the stools, were tested against the laboratory strain of that organism with the following results:—

4 gave positive results up to a dilution of 1 in 200.
3 " " " " " 1 in 400.
2 " " " " " 1 in 800.

2. The serum of 7 cases in which B. dysenteriæ (Flexner) had been isolated from the stools, tested against the laboratory strain of that organism, gave the following results:—

2 gave positive results up to a dilution of 1 in 200.
2 " " " " " 1 in 400.
2 " " " " " 1 in 800.
1 gave completely negative results.

The stage of the disease at which the above tests were carried out varied considerably, but in each case symptoms had been present longer than one week.

3 The serum from 30 convalescent dysenteric patients was tested against B. dysenteriæ (Shiga) and B. dysenteriæ (Flexner) with the following results:—

18 gave completely negative results with both organisms.

Considered as negative—
2 gave positive results with Shiga bacillus in a dilution not greater than 1 in 50.
1 gave positive results with Shiga bacillus in a dilution not greater than 1 in 100 (+).

Considered as positive—
4 gave positive results with Shiga bacillus in a dilution not greater than 1 in 400.
2 gave positive results with Shiga bacillus in a dilution not greater than 1 in 800.
2 gave positive results with Flexner bacillus in a dilution not greater than 1 in 400.
1 gave positive results with Flexner bacillus in a dilution not greater than 1 in 800.

4. The sera from 10 cases yielding the "dysentery-like" bacilli already referred to, tested against a similar organism isolated from other patients, gave negative results in 7 cases; in 2 positive results in a dilution of 1 in 50, negative in a dilution of 1 in 100; and in 1 positive result in a dilution of 1 in 100.

5. The sera of 6 patients from whose stools B. Morgan No. 1 had been isolated on being tested against that organism yielded negative results in 4 cases, a positive result in a dilution of 1 in 50 in 1 case, and a positive result in a dilution of 1 in 100 in 1 case.

6. The serum of 6 cases from the stools of which B. fæcalis alcaligenes had been isolated, tested against that organism, yielded in all cases negative results.

7. The serum taken from 20 dysenteric patients, irrespective of the type of disease, tested against B. coli and organisms Nos. I. and III. described above, gave the following results: 14 gave completely negative results; 1 agglutinated B. coli in a dilution of 1 in 100; 3 agglutinated organism No. I. in a dilution of 1 in 100; and 2 agglutinated organism No. III. in a dilution of 1 in 100.

Summary of Conclusions.

1. Both in amœbic and bacillary dysentery secondary invasion of the ulcerated intestinal wall by organisms from the intestinal lumen is an important factor aggravating both the local and general condition. The pyrexia so frequently observed in the later stages of amœbic dysentery is a result of this secondary invasion, and though usually toxic in origin may be due to bacterial invasion of the blood stream. A similar septicæmia may occur in the bacillary type of the disease.

2. Amœbic dysentery may be latent, the ulcers being confined to the cæcum and producing no symptoms. Apart from the danger of the disease becoming active such cases may act as foci for the spread of the disease.

3. Every case of amœbic dysentery should be treated by the administration of at least 10 grains of emetine. Incomplete treatment may result in the patient becoming a cyst carrier and a danger to the community.

4. The prevention of amœbic dysentery depends upon the elimination of cyst carriers, rapid and complete disposal of fæcal matter, and protection of food from dust and flies.

5. In bacillary dysentery the earliest pathological change in the intestinal wall is dilation of the vessels and a marked hæmorrhagic exudation into the submucous coat. Leucocytic accumulation is a later phenomenon resulting on necrosis of tissues.

6. Mannite-fermenting dysentery bacilli can exist in the intestine in an avirulent form. The presence of such an organism in the stools loses much of its significance in the absence of a positive Widal reaction.

7. The agglutination reaction in dysentery is a valuable means of differentiating the bacillary type of the disease. In Shiga infections specific agglutinins are invariably present after the first week of the disease. Distinct agglutination with a serum dilution of 1 in 100 is diagnostic.

8. Judging from serological tests it would appear that certain organisms, normally saprophytic, may in both types of dysentery stimulate the production of specific agglutinins as the result of invasion of the ulcerated intestinal wall.

9. The toxins of Shiga's bacillus are highly pathogenic to rabbits. Subcutaneous injection with either living or killed cultures results in the development of paralytic symptoms and death. The characteristic lesions of the human disease cannot be readily reproduced.

My thanks are due to Major A. R. Ferguson, R.A.M.C., officer in charge of the Central Laboratory, for valuable assistance in carrying out this work; also to Captain J. G. Thomson, R.A.M.C., and Lieutenant G. B. Bartlett, R.A.M.C., who supplied me with much of the necessary material.

A SERIES OF MILITARY CASES TREATED BY HYPNOTIC SUGGESTION.

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THE following paper gives in tabular form an account of 60 cases treated by hypnotic suggestion. Twenty earlier cases were dealt with in the *Journal of the Royal Army Medical Corps* of May, 1916, and a brief summary of these is given below. It will be seen that the most successful cases are those of shock psychasthenia of all kinds, while cases of hyperthyroidism and neurasthenia also show very good results. The cases speak for themselves and confirm me in the opinion that practically all the cases of war neurasthenia and psychasthenia can be cured and sent back to work if treatment by hypnotic suggestion is used in reasonable time. Prejudice against this form of treatment does not, happily, exist in the minds of more than a very small proportion of the patients, and my experience has led me to think that it is only found in those whose keenness to return to the war area is open to considerable doubt. So far as I have been able to trace them, the cure has been permanent in my cases, and if the same standard of criticism be applied to these cases and to similar cases treated in other ways the utility of hypnotic suggestion will be obvious to any fair-minded critic.

The cases cited in the previous article included: psychasthenia, 6; hyperthyroidism, 6; neurasthenia, 2; Jacksonian epilepsy with functional gait, 1; trench shins, 1; painful amputation scar, finger, 1; pain in foot after frost-bite, 1. In 17 out of the 20 cases somnambulism was induced, while in the other 3 earlier stages only were reached. The results were all most satisfactory, complete cure (for the time being at all events) being attained.

1	2	3	4	5	6	7	8	9	10	11
Case No.	Rank.	Age	Disease.	Disability.	Duration of disease.	History.	Date of admission.	Days treated.	Degree of hypnosis.	Result.
21	Lieut.	43	Psoriasis.	—	0 yrs.	Never without some spots all the time.	29/4/16	60	2nd stage.	Cured apparently.
22	Clerk.	24	Neurasthenia.	Pronator spasm of R. hand, unable to write.	6 wks.	Always of nervous temperament. Continuous carbon copying.	30/4/16	28	3rd stage.	Cured. Returned to duty.
23	Pte.	22	Psychasthenia.	Nervous, constant tremor of whole body, insomnia, bad dreams, tachycardia.	9 mos.	Concussion from mine explosion in France. Went to Salonica unfit, got worse.	10/5/16	18	Som.	Cured. Sent to England.
24	,,	46	Neurasthenia.	Negation spasm of head constant.	6 wks.	Shock, both shell and Zeppelin, Balkans.	13/5/16	5	,,	Cured. Camp for duty.
25	L.-Cpl.	26	Intestinal colic.	Intermittent colic and general debility.	Life-long.	Has persisted in spite of appendicectomy.	,,	6	,,	Cured apparently. Sent to camp.
						Relapsed apparently from home worries, and nostalgia.	30/5/16	11	,,	Cured apparently. Sent to England.
26	Cpl.	24	Hyper-thyroidism.	Nervous, præcordial pain, short wind, insomnia, constant pain in head.	5 mos.	Came from Suvla with dysentery, conv. camp Dec., '15; later sent to W.I.B., bad all time.	15/5/16	20	,,	Cured. Returned to duty.
27	Pte.	24	,,	Tachycardia, præcordial pain, nervousness, tremor, dyspepsia.	6 ,,	Buried under parapet of trench Nov., '15.	18/5/16	18	,,	Cured. Camp for duty.
28	,,	24	Bronchitis and asthma.	Nervousness, tachycardia, severe constant cough, short of breath.	18 dys.	Shock and exposure in Balkans.	,,	11	,,	Cured. Sent to England.
29	Driver.	23	Neurasthenia.	Rheumatic pains all over, nervous, weak, præcordial pain.	2 mos.	,, ,,	,,	8	,,	Cured. Camp for duty.
30	Pte.	40	,,	Broken down, despondent, severe bronchitis, "very shaky."	2 ,,	,, ,,	,,	,,	,,	,,
31	Rflmn.	34	Contraction from old fracture tib.-fib.	Unable to put heel on ground or walk without crutches.	—	Date of fracture not ascertained.	,,	41	3rd stage.	Walks well, little pain. Sent to camp.
32	Pte.	32	Trench shins.	Objected to treatment, so was sent back.	—	—	—	—	—	—
33	,,	23	Psychasthenia very severe.	Tremor with great rigidity of whole body, anxious expression.	3 mos.	Shell shock.	18/5/16	10	Som.	Cured. Sent to England.
34	,,	21	Sciatica.	Objected to treatment, so was sent back.	—	—	—	—	—	—
35	,,	25	Neurasthenia.	Constant severe headache and transient attacks of dizziness.	17 mos.	Started on arrival in Malta. In Dec. '15 fell and was unconscious 1 hr., then in Imtarfa for 14 weeks.	21/5/16	15	Som.	Cured. Returned to duty.
36	,,	43	Synovitis of R. knee.	Unable to straighten leg or walk without severe pain. Chr. migraine for 7 mos.	2 ,,	Fell down a hole in March in Balkans.	,,	38	,,	Rel. Leg straight; walks, little pain. Sent to camp.
37	Spr.	21	,,	Fluid in joint; bend of 25°. Pain at rest. Unable to walk.	2 ,,	Twisted knee in March in Balkans.	,,	,,	,,	Leg straight; walks, little pain. Sent to camp.
38	Pte.	30	Trench shins.	Tenderness both ankles; limitation of movement; sock anæsthesia.	11 wks.	Exposure in Feb., '16.	22/5/16	13	2nd stage.	Cured apparently. Sent to camp.
39	,,	31	,,	Pain in both knees and shins, worse at night.	10 ,,	Exposure in Feb., '16, in Balkans.	,,	,,	3rd stage.	,,
40	,,	31	,,	Pain, tenderness in both legs and L. hip; colitis.	10 ,,	,, ,,	,,	40	Som.	Shins and colitis cured, still weak. Returned for disposal.
41	,,	20	V.D.H. Mitral. Failing compensation.	Palpitation, præcordial pain, dyspnœa, apex 1 in. outside nipple.	2 mos.	Acute rheumatism in childhood. Says heat of Malta has made him break down.	,,	14	,,	Compensation restored. Returned to duty.
42	Gnr.	22	Hysterical.	Objected to treatment, so was sent back.	—	—	—	—	—	—
43	Pte.	42	Trench shins.	Refractory and objected to treatment, so returned to another ward.	—	—	—	—	—	—
44	,,	41	,,	Spasmodic pain in shins; depressed from recent loss of wife.	2 mos.	Exposure in Balkans.	1/6/16	10	Som.	Cured, happy. Returned to duty.
45	Sgt.	30	Neurasthenia.	Insomnia and great depression.	8 ,,	Had nervous breakdown five years ago. Peninsula revived trouble.	27/5/16	9	,,	Cured. Returned to regt.
46	Gnr.	38	,,	Constant tremor whole body, nervousness, tachycardia, præcordial pain.	15 yrs.	Dates from S. African War.	3/6/16	8	,,	Cured. Returned to duty.
47	Sgt.	45	,,	Nervous tremors, general debility, and depression.	3 mos.	No history of shock or accident.	4/6/16	15	,,	Cured. Returned to regt.
48	Pte.	37	Chronic rheumatism.	Objected to treatment, so returned to another ward.	—	—	—	—	—	—

1	2	3	4	5	6	7	8	9	10	11
49	Pte.	41	Chronic rheumatism.	Unable to use R. arm or leg.	6 yrs.	Acute rheumatism six years ago.	6/6/16	5	Som.	Cured. Sent to camp.
50	L.-Cpl.	19	Synovitis L. knee.	Objected to treatment, so returned.	—	—	—	—	—	—
51	S.S.M.	23	Neurasthenia.	Depressed, sleepless, irritable, tremor of hands and lower limbs.	6 mos.	Victim of own ambition and self-consciousness.	8/6/16	28	3rd stage.	Cured. Returned to duty.
52	Q.M.S.	30	,,	Tremor of hands, palpitation, depression, constant headache.	2-3 ,,	Concussion from fall, 27/3/16.	9/6/16	,,	,,	Cured, except cannot stand sun. England for duty in France.
53	Pte.	22	—	Persistent headache.	Life-long.	No cause ascertained. Patient is very anæmic.	,,	,,	Som.	,,
54	,,	30	Stammering. Pain round old operation scar.	Bad congenital stammerer.	,,	—	10/6/16	—	,,	Greatly improved, pain gone. Sent to England.
55	Driver.	39	Hyperthyroidism. Trench shins.	Pain shins and back, headache, tachycardia, enlarged thyroid.	7 wks.	Four weeks in Canadian Hospital with pains.	11/6/16	25	,,	Cured, except cannot stand sun. Sent to England for service in France.
56	Pte.	20	Hyperthyroidism.	Nervous, palpitation (P. 110), tremor hands, dyspnœa, large thyroid.	8 mos.	On Peninsula. Since Feb. in Censor's office	,,	23	,,	Cured. Returned to regt.
57	Cpl.	28	,,	,, ,, (P. 96)	6 ,,	Dysentery in Balkans Dec., /15. After hospital in Censor's office.	,,	,,	4th stage.	Cured, except cannot stand sun. Sent to England for duty in France.
58	Pte.	20	,,	,, ,,	8 ,,	Shell-shock in Gallipoli, Malta Dec. 8th with frost-bite. Since Feb. in Censor's office.	,,	22	Som.	,,
59	,,	25	,,	Ditto, and "dizzy fits."	2 ,,	Exposure in Balkans.	12/6/16	,,	,,	,,
60	Driver.	29	,,	,, ,,	3 ,,	,, ,,	,,	,,	3rd stage.	,,
61	Pte.	20	Epilepsy.	—	5 yrs.	Had one fit every 2 mos. till lately, oftener since enlistment.	15/6/16	33	Som.	Relieved. Returned to duty.
62	,,	29	Neurasthenia.	Trembling all over, præcordial pain.	9 ,,	Trouble started 9 yrs. ago, after accident, worse since enteric and dysentery in Balkans.	,,	29	,,	Cured. Camp for duty.
63	Rflmn.	38	,,	Tremor of hands and whole body, worse if watched.	3 mos.	No history of accident or shock.	,,	38	3rd stage.	Failed. Sent to England.
64	Pte.	22	,,	Sharp pain in lower chest, coughing, short of breath.	9 ,,	Gassed at Ypres.	20/6/16	16	Som.	Cured. Camp for duty.
65	,,	30	Trench shins.	Objected to treatment, so returned.	—	—	—	—	—	—
66	,,	20	Psychasthenia	Pain in left lumbar region and hip, severe on slightest motion.	2 ,,	Kicked by mule, followed a few days later by P.U.O.	23/6/16	11	,,	Cured. Duty.
67	Driver.	30	,,	Constant severe pain in epigastrium.	6 ,,	Kicked by mule; told it was fracture of the ensiform process.	30/6/16	,,	,,	Cured. Camp for duty.
68	L.-Cpl.	39	Neurasthenia.	Dyspepsia, vomiting, debility.	7 ,,	Ill since Nov. 5th. P.U.O. in May, vomited a pint of blood on 21/6/16 in hospital.	,,	17	,,	Cured. England for family reasons.
69	Rflmn.	31	,,	Falls about, knees give way.	3 ,,	Buried twice in France, since then otorrhœa. Bad since heat began.	1/7/16	6	,,	Fit, but cannot stand sun. Sent to England.
70	Pte.	31	,,	Pains in back and loins, cannot stand straight up, worse at night.	6 wks.	Exhaustion after much long marching.	,,	20	,,	Cured. Duty.
71	,,	32	,,	Left-sided anæsthesia, paresis both sides, insomnia, despondent.	3 mos.	No history of shock, only of exhaustion.	,,	21	,,	Relieved. Sent to England.
72	,,	30	,,	Constant frontal headache, constipation.	4 ,,	Exhaustion in Balkans.	3/7/16	6	,,	Cured. Sent for disposal.
73	,,	37	Psychasthenia.	Paresis of left side and both legs, headache, depressed.	3 wks.	Had enteric in France, and "nerves shattered."	6/7/16	7	,,	Cured. Camp for duty.
74	Spr.	28	Hyperthyroidism.	Headache, nose-bleeding, tremor of hands. Palpitation, thyroid enlarged.	6 mos.	Similar condition after acute rheumatism 13 years ago, worse since air-raids in Balkans.	,,	,,	,,	Cured. Duty.
75	Pte.	27	,,	Spasmodic shortness of breath, palpitation. P. 128. Tremor hands, enlargement of thyroid.	5 wks.	Fainted while trench digging, afterwards pain at heart and light-headed.	7/7/16	18	3rd stage.	Cured. Camp for duty.
76	L.-Cpl.	21	,,	—	6 mos.	In retreat from Serbia.	,,	13	Som.	,,
77	Pte.	43	Myalgia.	Pain in limbs, severe headache.	1 yr.	Same condition in France, nostalgia.	,,	9	,,	Reld. Camp for duty.
78	Gnr.	27	Psychasthenia.	Complete loss of speech.	8 wks.	Aeroplane bomb stampeded horses, while patient escaping another knocked him down.	20/7/16	8	,,	Cured. Duty.
79	Driver.	22	,,	Pains all over, severe headache, insomnia, very nervous.	10 ,,	Zeppelin raids following acute rheumatism.	21/7/16	7	,,	Cured. Camp for duty.
80	Rflmn.	20	Hyperthyroidism.	Præcordial pain, tremor of hands, pain in back, palpitation, very nervous.	1 mo.	Trench fever, June.	24/7/16	5	,,	,,

THE LUETIN REACTION IN SYPHILIS.

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Noguchi's luetin consists of killed cultures of the Treponema pallidum emulsified with the media in which they have been cultivated. The use of this preparation in the diagnosis of syphilis is analogous to that of tuberculin in von Pirquet's test for tuberculosis; that is to say, if it be injected into the skin during certain stages of syphilitic infections it produces a cuti-reaction.

Noguchi's first experiments were made with rabbits artificially infected with syphilis and, led by the encouraging results which he obtained with these animals, he employed his preparation in the detection of the disease in man. He found that, in the majority of normal persons, 24 hours after the injection a small erythematous area appeared at the point of inoculation, which subsided in 48 hours. On the other hand, in the skin of syphilitic persons the injection of luetin frequently produced certain well-defined lesions of which he distinguished the following three forms.

1. *The papular form.*—An indurated papule, 5 to 10 millimetres in diameter, appears in 24 to 48 hours. The papule increases until the fourth or fifth day, after which it subsides gradually and disappears by the end of the second week.

2. *The pustular form.*—The reaction pursues the same course as the papular form until the fifth day, when, instead of becoming smaller, it increases in size, the central portion softens, and a vesicle forms which rapidly becomes pustular. This ruptures, and a scab forms which falls off in a few days. There is a wide range in the intensity of this reaction. Noguchi found that this form occurred almost constantly in tertiary syphilis and also in cases of secondary and hereditary syphilis which had been treated with salvarsan.

3. *The torpid form.*—In rare instances, though no positive result follows the injection during the first ten days, at the end of that time, or after an even longer interval, a pustular reaction occurs.

Noguchi found that in syphilitics the reaction varies according to the stage of the disease and the treatment which the patient has received. In untreated primary and secondary cases the result is generally negative; occasionally there is a papular reaction. In secondary cases treated with salvarsan the result is positive in more than 70 per cent. In tertiary and hereditary cases the reaction is intense and almost constantly positive.

The sample of luetin which was employed in the investigation under consideration was received from Dr. Noguchi on June 13th, 1914. The first injections were made four days later, and the series of inoculations were completed on August 12th.

As a control to the luetin an emulsion was made which consisted of the same constituents as that preparation except that it contained no treponemata. It was prepared according to Noguchi's original method. Two per cent. agar-medium was ground up in a mortar and ascitic fluid added until a mixture was obtained which passed readily through a fine hypodermic needle. Carbolic acid was added to the amount of 0·5 per cent. The fluid was put up in glass capsules, each containing 0·5 c.c., and these were heated for one hour at 60° C.

In accordance with Noguchi's instructions, the test was applied in the following manner. The skin of both forearms was rubbed with pledgets of cotton-wool soaked in a solution of lysol. The injections were made, not subcutaneously, but into the superficial layers of the skin, by means of a tuberculin syringe armed with a very fine needle. A successful inoculation raises the epidermis in the form of a flattened papule, whiter than the surrounding skin, very much like a "nettle-sting," and of about the same duration. In each instance about 0·07 c.c. of equal parts of luetin and salt solution were injected into the left forearm and a corresponding amount of the control emulsion into the right.

The patients among whom this investigation was carried out were all Asiatics (chiefly Chinese) of the coolie class. They were inmates of the Federated Malay States Government hospitals, and I am indebted to the medical officers in charge of these institutions for permitting me to undertake this work in their wards. Two groups of patients were examined: (1) a group of persons who were either under treatment for syphilis or were believed to have suffered from that disease; and (2), as a control to the first, a number of persons suffering from diseases other than syphilis.

TABLE I.—*Results of Luetin Reaction in a Group of 130 Syphilitics.*

Primary (9 cases. 33 % positive.)		Negative 6	Positive 3	Papular	3
				Pustular	0
Secondary (42 cases. 57 % positive.)	Active	Negative 15	Positive 21	Papular	12
				Pustular	9
	Latent	Negative 3	Positive 3	Papular	2
				Pustular	1
Tertiary (73 cases. 70 % positive.)	Active	Negative 13	Positive 34	Papular	20
				Pustular	14
	Latent	Negative 9	Positive 17	Papular	6
				Pustular	9
				Torpid	2
Doubtful (6 cases. 1 positive.)		Negative 5	Positive 1	Papular	1
				Pustular	0
		Negative 51	Positive 79		

The results of the test as applied to the first group, which consisted of 130 individuals, are shown in Table I., where it can be seen that in 79 cases the reaction was positive and in 51 it was negative. The proportion of positive results was least in primary syphilis, greater in secondary, and greatest in the tertiary stage of the disease. In primary syphilis 3 out of 9 reacted positively; in the secondary stage, 24 out of 42; and in tertiary syphilis, 51 out of 73.

As is shown in Table I., the most common form of positive reaction was the papular type. This was the case in every stage of syphilis, except the latent tertiary form, in which there were only 6 papular reactions out of 17 positive results. Among these 17 were included two torpid reactions which occurred in a couple of old men from an infirmary. They both denied that they had ever suffered from syphilis, and both of them gave negative Wassermann reactions; one was blind from old ophthalmia, and the other had many scars which looked like the marks of old syphilitic sores. In the first case the reaction appeared on the fourteenth, and in the second on the eleventh, day after the luetin had been inoculated. One of these patients had been tested about a year before with a different sample of luetin, and on that occasion also he gave a torpid reaction.

In the negative cases the marks of both the luetin and the control punctures had disappeared in about 48 hours. In most of the positive cases a small red papule commenced to appear on the third day at the site of the luetin inoculation. This papule increased until the fifth or sixth day, when it was about the size of a pea. In the papular form the lesions subsided gradually and disappeared at the end of the second week. In the pustular form a red areola appeared round the papule and the centre became cyanosed and softened on about the sixth day. On the eleventh or twelfth day the resulting pustule usually ruptured and discharged a curdy, watery fluid, after which it quickly dried up under a scab and left a pigmented patch which gradually faded. In several instances the contents of these pustules were drawn off with an aspirating syringe and inoculated on to agar, but the latter always remained sterile.

In 4 of the secondary and 5 of the tertiary cases there was a reaction at the site of the control inoculation. In 7 instances this reaction was of the papular type, while at the point where the luetin had been injected there was a pustular reaction. The 2 remaining cases had pustules on both arms, but the pustules on the right (the control) side were smaller, and disappeared sooner than those at the site of the luetin inoculation. Noguchi

TABLE II.—*Results of the Wassermann Reaction in 109 Patients belonging to the Syphilitic Group.*

Stage of syphilis.		In agreement with luetin reaction.	Not in agreement with luetin reaction.	
Primary	Positive	2	4	= 6
	Negative	0	1	= 1
Secondary	Positive	19	10	29
	Negative	2	5	7
Tertiary	Positive	25	10	35
	Negative	8	23	= 31
Totals		56	53	= 109

observed a similar phenomenon in 5 per cent. of his cases, and he ascribed it to that peculiar hypersensibility of the skin which sometimes occurs in syphilis and which Neisser has called "*Umstimmung*."

In Table II. the results of the Wassermann reaction are compared with those of the luetin test. Seventeen of the patients were not examined by the Wassermann reaction, because blood could not be obtained for the purpose, and in 4 other cases, where the reaction was negative, the diagnosis of syphilis was rather doubtful, so these were excluded. There remained 109 patients, belonging to the group of syphilitics, who were submitted to both the Wassermann and the luetin tests. The results were as follows:—

(1) Primary syphilis, 7 cases.	
Positive Wassermann reactions	6
Positive luetin reactions	3
(2) Secondary syphilis, 36 cases.	
Positive Wassermann reactions	29
Positive luetin reactions	24
(3) Tertiary syphilis, 66 cases.	
Positive Wassermann reactions	35
Positive luetin reactions	48

In the primary and secondary cases the Wassermann reaction was more frequently positive than the luetin test; but in the tertiary stage of the disease the reverse was the case and, as is shown in Table II., there were 23 cases of tertiary syphilis which gave negative Wassermann but positive luetin reactions.

There was no more agreement in the results of the two reactions than is accounted for by chance; in the series of 109 cases the results were the same in 56 and at variance in 53. This shows that the substance which gives rise to a positive Wassermann reaction is not the same as the substance which causes a positive response to an injection of luetin.

Of the 109 syphilitic cases 99 reacted positively to one or to both of the tests; in the remaining 10 both reactions were negative. As showing the danger of attaching too much weight to the results of these tests when the reactions are negative it may be profitable to consider these 10 cases in some detail. Two of them were in the secondary stage of the disease. One of them, who was suffering from iritis and polyarthritis, stated that he had had a primary sore a year ago. The other had been infected for three months; there was not the slightest doubt about the diagnosis, for he had a typical macular eruption and a healing chancre in which the Treponema pallidum was found. The luetin and Wassermann reactions in this case were both negative. The latter was found to be negative on three different occasions; once, 48 hours after an intravenous injection of neosalvarsan. Tested a fourth time, two weeks later, it had become faintly positive.

In the group of tertiary syphilitics there were 8 cases in which both the Wassermann and luetin reactions were negative. In 4 of these 8 only the scars of the disease remained, situated in two instances in the spinal cord with resulting paralysis, and in two upon the surface of the head and body; the process was no longer active and the primary sore dated back some 20 years or more. In all of the 4 remaining cases active lesions were present; 2 had ulcers, 1 a necrosed tibia, and the fourth was suffering from multiple gummata of the long bones. In the last case the diagnosis was beyond dispute. That is to say, in this series of 109 patients examined by the Wassermann and luetin reactions there was at least one case of active secondary syphilis and one case of active tertiary syphilis in which both reactions were negative.

As a control to the results of the luetin reaction in the group of 130 syphilitics, it was necessary to investigate its action on persons who were free from syphilis, and, for this purpose, the test was applied to a second group composed of 82 persons suffering from other diseases. This second group comprised 40 cases of beri-beri, 20 cases of malaria, and 22 of leprosy. Eight of the beri-beri patients, 4 of the malaria patients, and 7 of the lepers either had scars on the penis or gave a history of syphilis. The Wassermann reaction was positive in 4 of the cases of beri-beri, and in 2 of the patients who were suffering from malaria. Of the 22 lepers, 13 gave positive Wassermann reactions, but several of them had been selected for the luetin test on this account. All of the 82 patients in this control group reacted negatively to luetin with the exception of one man with beri-beri who had contracted syphilis ten years before.

It appears, then, that the action of luetin is specific: positive results occur only in syphilis; but in cases of this disease the proportion of positive reactions observed here was much smaller than that obtained by Noguchi.

It may well be that imperfect storage had impaired the reliability of the sample of luetin employed in this investigation. The efficiency of luetin, in the tropics at least, appears to be impaired by keeping. If the preparation could be kept continuously in a refrigerator, as Noguchi recommends, it is possible that this deterioration might be avoided. In a former investigation the specimen of luetin employed was nine months old and had been exposed to varying temperatures on its journey from New York to the Federated Malay States. Noguchi has stated that when luetin is examined under the dark-ground microscope it is seen to contain about 70 dead T. pallida in each field, but in this old specimen not more than a tenth of that number could be recognised, and when it was re-examined three months later the number of organisms had become still further reduced. In the present investigation the sample of luetin employed was about one month old when the series of inoculations was commenced, and three months old when it was finished. It contained about 35 T. pallida in a field (1/12 objective and No. 6 ocular). It was stored in a refrigerator, except when it was used in country districts; but on its journey through the post, from the Rockefeller Institute to Kuala Lumpur, it must have been exposed to varying temperatures and it appears to have deteriorated. Such sensitiveness to conditions of temperature detracts from the utility of luetin.

Difference of treatment may also have been a factor in producing discrepancy between the results of luetin inoculations here and those obtained by Noguchi in America. As a result of his investigations into the effect of antisyphilitic treatment upon the luetin reaction Noguchi has concluded that: (*a*) mercurial treatment may bring out the reaction in those cases in which it has not yet become positive, but such treatment has little or no effect upon the reaction when it has once developed; (*b*) salvarsan acts very powerfully in bringing out the reaction. Its subsequent continued use may eventually cause the reaction to become negative; probably by destroying the spirochætes and curing the patient.

As the luetin reaction is influenced by treatment it is clear that uniform results will not be obtained in places where there is a great divergence in the lines of treatment adopted. One quarter of the cases investigated by Noguchi had received injections of salvarsan, and a large proportion of the remainder had undergone a thorough course of mercury. The treatment of syphilis on modern lines has not yet been adopted in the Government hospitals of the Federated Malay States; only 6 of the 130 syphilitics examined by means of the luetin reaction had received injections of neosalvarsan, and in only 2 of these cases had the injections been repeated. Six patients had been treated with mercurial inunctions, four with mercury powders and two with injections. The remainder of those who were under treatment had been given small doses of the perchloride of mercury (0·003 to 0·004 gm.) in the form of the liquor hydrargyri perchloridi of the British Pharmacopœia.

Conclusions.—The results of the luetin test in the group of syphilitics examined in the course of this investigation were not so frequently positive as in the cases examined by Noguchi and other observers in America. This divergence of results is probably due to: (1) the deterioration from storage of the sample of luetin employed here; (2) differences in the methods of treatment in force in the Federated Malay States and the United States respectively. No positive reactions were obtained in persons free from syphilis; they occurred in syphilitics only. The luetin test is so easily carried out that it would be of the greatest use in general practice if one could always decide, from the result of its application, whether a patient were, or were not, free from syphilis. Unfortunately this is not the case, for while a positive reaction is of great significance, a negative result does not exclude syphilis. When performed in conjunction with the Wassermann reaction the luetin test is of great value; in the early stages of syphilis the Wassermann reaction, and in the later stages the luetin reaction, is more constantly positive. In the great majority of instances one or other reaction is positive; but in a given case, even though both reactions be negative, syphilis is not absolutely excluded.

THE SURGICAL USES OF OZONE.

BY GEORGE STOKER, M.R.C.P. IREL., M.R.C.S. ENG.,
MAJOR, ROYAL ARMY MEDICAL CORPS.

THE accompanying tabulated statement of the results of the first 21 cases treated by ozone at the Queen Alexandra Military Hospital cannot be regarded as anything but satisfactory from every standpoint, be it humanitarian, scientific, or economic. The cases were, for the most part, those of cavities and sinuses in the femur and tibia. It is the experience of those who have seen a great deal of war surgery that such cases obstinately resist treatment and are apt to remain unhealed for months and years.

The treatment consists of the application of ozone to the affected parts; it is, therefore, necessary to have an apparatus for generating ozone which shall be portable and easily worked. The one I am accustomed to use is known as Andriolis' ozoniser. It is called into operation by a four-volt battery animating a ¼-inch sparking Rhumkorff coil. The oxygen passes from a cylinder through the ozoniser, and in doing so comes in contact with a metal armature, the effect of this being to transform the oxygen into ozone.

Table of Wounds, Sinuses Treated by Oxygen and Ozone.

No.	—	Nature of disability.	Previous duration.	Duration of treatment.	Results.
1	J. B., Lincolns.	Compound comd. fracture of femur resulting in cavity 1 × 1½ inches and sinus 1½ inches deep.	20 mos.	2 mos.	Cure.
2	W., Lincolns.*	2 large surface wounds on forearm 5 × 4.	6 wks.	2 ,,	,,
3	H. E. B., E. Surreys.	3 sinuses opening from back of scapula, each 6 inches long.	9 mos.	2 ,,	,,
4	G. G. T.	Ulcer on end of stump.	3 ,,	3 wks.	,,
5	M., K.O.R.L.	Wound on shoulder.	10 ,,	4 ,,	,,
6	M.	Sinus in tibia 1½ inches deep.	12 ,,	7 ,,	,,
7	H. D., Scots Guards.	Ulcer on instep.	2½ ,,	3 ,,	,,
8	A. A. A., Canadians.	Cavity and sinus in femur, 2½ inches deep.	14 ,,	2 mos.	,,
9	F. G. B., Grenadier Guards.	Two sinuses in leg, one 8 and one 5 inches long.	8 ,,	1 mth.	,,
10	J. W., Grenadier Guards.	Cavity in finger after whitlow.	3 wks.	8 days.	,,
11	P. V., Suffolks.	Cavity and sinus, 2 inches deep, in left humerus.	14 mos.	3 wks. & 3 days.	,,
12	G. C., R. Fusiliers.	Sinus in stump after amputation.	6 ,,	5 days.	,,
13	T. C., D.L.I.	Wound in shoulder below clavicle, leaving sinus 2½ inches deep.	4 ,,	16 ,,	,,
14	Major M., R. Inniskilling Fusiliers.	Sinus in lower end of outside of R. humerus 1½ inches deep.	10 ,,	5 ,,	,,
15	J. G., Seaforth Highlanders.	Ulcer in centre of amputation flap.	9 ,,	3 wks.	,,
16	Sister N., Q.A.M.N.S.	Large opening at back of right ear following 2 operations for mastoiditis.	7 ,,	3 ,,	,,
17	W. B., Lifeguards.	Suppuration of eye socket after enucleation of eyeball.	6 ,,	3 ,,	,,
18	Lieut. B., R. Warwicks.	Sinus leading down to right femur, 2 inches deep.	7 ,,	3 ,,	,,
19	Lieut. R., Canadian Inf.	Trench gingivitis with ulceration of gums.	3 wks.	3 ,,	,,
20	W. M., Hants.	Sinus and abscess cavity in amputation stump.	6 mos.	5 ,,	,,
		Total	157 mos. 2 wks.	18 mos. 2 wks.	

* In this case treatment was discontinued for four weeks.

N.B.—I have only failed in one case, Major S. H. He was twice plated for fracture of the femur. The "plate" acted as a "foreign body."

The properties of ozone, which have a wonderfully healing effect, are, as far as one can say at present, three:—

1. It is a strong stimulant and determines an increased flow of blood to the affected part.

2. It is a germicide, which destroys all hostile micro-organic growth.

3. As the French chemist Hennocque has shown, it has great powers in the formation of oxyhæmoglobin.

The ozone is applied on the wounded surface or to the cavities and sinuses for a maximum time of 15 minutes, or until the surface becomes glazed. Ozone has the particular power of disclosing dead bone, foreign bodies, septic deposits, &c. This, I believe, it does by destroying the granulations and micro-organic growths (presumably unhealthy) that are found in close contact with septic deposits, foreign bodies, or dead bone.

Cleansing and Dressing.

Wounds and sinuses, &c., are washed twice daily with boiled water and a dressing of dry gauze is applied. It must be observed that at first ozone causes an increase of the discharge of pus; later on the pus is replaced by clear serum, which at a still later stage becomes coloured reddish or pinkish. In open wounds it is necessary to strip off the parchment-like film surrounding the edges, which is composed of oxidised serum. This is easily effected by applying a hot compress for 15 or 20 minutes, after which the film can be easily peeled off with a dissecting forceps.

At present our knowledge of the effects of ozone is but small, but later I hope to bring before the medical public further satisfactory facts with reference to its working and results.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

PLACENTA PRÆVIA AND CÆSAREAN SECTION.

BY A. G. TRESIDDER, M.D. LOND.,
CAPTAIN, INDIAN MEDICAL SERVICE; STAFF SURGEON, POONA.

ONE meets only a few cases of placenta prævia in which the condition of both mother and child justifies the operation of Cæsarean section. This is more especially so in hospital practice, where such patients are usually admitted in a more or less advanced stage of labour and only after there has been a considerable loss of blood, a state of affairs which would obviously contra-indicate a major operation when other means of delivery are open to us.

In recent years it has been recognised that the best treatment for certain cases of placenta prævia is Cæsarean section, and the results obtained among these carefully selected cases have been very satisfactory both as regards the maternal mortality and that of the infants. The maternal mortality of placenta prævia treated on the ordinary lines is 4 to 8 per cent., and the average fœtal mortality is 60 per cent. Munro Kerr says: "The best figures give 4 per cent. and 35 per cent. respectively, and they are as low as one can ever expect to reach with the present recognised methods of treatment." But in certain cases of placenta prævia, such as the one described below, Cæsarean section would, I think, justify us in expecting much better results than a maternal mortality of 4 per cent. and a fœtal one of 35 per cent.

As regards the mothers, there seems no special reason why Cæsarean section performed in suitable cases of placenta prævia should not yield quite as good results as it does in cases of contracted pelvis, when the operation is performed under the best conditions, the maternal mortality then being 2·9 per cent. (Amand Routh). Berkeley and Bonney place the maternal death-rate of Cæsarean section, when this operation is performed under the best conditions, as "probably under 1 per cent." In well-selected cases of placenta prævia the maternal mortality should not, therefore, be greater than about 2 per cent., i.e., about half as great as we could expect from any other method of treatment. One other great advantage to the mother is a lesser risk of morbidity as compared with that which results from the necessary manipulations, often prolonged, which accompany delivery *per vias naturales*.

The fœtal mortality must obviously be very greatly reduced by Cæsarean section, and the rate of 35 per cent. at the best would be reduced to one of about 5 per cent. Further, in most cases the mother should be as well able to nurse her infant as after normal delivery, a result which, because of some slight sepsis or as the result of hæmorrhage before and during delivery, is often denied to the mother who has been otherwise delivered.

Generally speaking, the operation of Cæsarean section in a case of placenta prævia is indicated under the following

conditions: (1) when the hæmorrhage has not been excessive and the maternal pulse is full and its rate not above 100 per minute; (2) when the cervix is undilated and appears to be unduly rigid, indicating that dilatation is likely to be slow and difficult, as is often the case in elderly primiparæ; (3) when the surgeon can be confident that there is no risk of sepsis from previous frequent vaginal examinations, &c.; (4) the pregnancy should have reached full term or very nearly so, and the fœtal heart sounds must be good; (5) another factor which should influence the surgeon in deciding in favour of Cæsarean section is the co-existence of some disproportion between the size of the fœtal head and the maternal pelvis; and (6), as in the case here described, when the parents are especially desirous of a live child. The following case will serve to illustrate these points:—

The patient, a Eurasian aged 32, was admitted under my care to the maternity department of the Sassoon Hospital, Poona, on Oct. 19th, 1915. She had been married 12 years, and the present was her first pregnancy. The last period ended on Jan. 11th, 1915; the probable date of confinement would be about Oct. 16th, 1915. The patient stated that she had had slight pains for about 36 hours; bleeding began a few hours before she came to hospital. No vaginal examination had been made previous to her admission to hospital. When I saw her she was having feeble pains at about half-hourly intervals. Her general condition was excellent, the pulse being full and its rate 80 per minute; the face was placid and the tongue clean and moist. On abdominal examination the child was found to be in the first vertex position and the fœtal heart sounds were good. The pelvic measurements were normal. On vaginal examination there was still a definite and fairly firm cervix, which admitted one finger only; at the internal os only placental tissue could be reached.

Both the patient and her husband were very desirous of having a live child, and considering all the points of her case, I felt justified in advising abdominal section. Cæsarean section was therefore performed and a full-time live child was delivered. The bleeding from the placental site was somewhat excessive and for a moment rather disconcerting; it was certainly more than I had noted in cases of Cæsarean section in which the placenta was normally implanted. During the first few days after the operation there was a good deal of trouble from after-pains; otherwise the patient made an uneventful recovery, and both mother and child were discharged quite well on Nov. 27th.

My thanks are due to Lieutenant-Colonel A. Hooton, I.M.S., for permission to publish this case.

Poona.

LEFT FALLOPIAN TUBE FOUND IN LEFT FEMORAL HERNIA.

BY E. G. RENNY, M.R.C.S. ENG., L.R.C.P. LOND.,
ASSISTANT SURGEON AND ANÆSTHETIST ESSEX COUNTY HOSPITAL, COLCHESTER.

I REPORT the following case as I can find no record of a Fallopian tube presenting in a femoral hernia.

The patient, aged 42, married, mother of three children, had noticed a lump in the left groin for 18 months. During the last five weeks it had become painful, and thinking it was a rupture she bought a truss and wore it. The effect of wearing the truss was to make the lump very painful and inflamed. She then asked me to see her. I found a painful swelling in the groin which, on account of the inflammation present, made the diagnosis uncertain. It was dull to percussion, not reducible, and had no impulse on coughing. No strangulation symptoms were present. The finger could be passed up the inguinal canal for a short distance. Rest was advised, and when the inflammation had subsided (on August 17th) I made an incision over the tumour. It proved to be a femoral hernia with somewhat thickened sac. It contained a considerable quantity of green fluid (under tension). Occupying the crural canal was a red, soft substance, which, when traction was made on it, proved to be the left Fallopian tube with its fimbriated extremity presenting. This was returned to the abdomen without much difficulty, and the sac was ligatured and excised.

Colchester.

ERRATUM.—In Mr. Irwin Moore's paper on the Operation of Laryngo-fissure Fig. 2 appears upside-down, giving the anæsthetist's and not the surgeon's view of the field. Mr. Moore points out, also, that Dr. Lack's views are incorrectly stated at the end of the article. Dr. Lack does not hold that impairment of voice would follow as described.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Specimens.—Concealed Accidental Hæmorrhage.—Acute Toxæmia of Pregnancy.—Cæsarean Section and Hysterectomy for Accidental Hæmorrhage.

A MEETING of this section was held on Oct. 5th, Dr. G. F. BLACKER, the President, being in the chair.

Dr. W. S. A. GRIFFITH showed a Lipoma of the Broad Ligament, weighing 13 lb. At the operation the tumour was found to be retroperitoneal, extending from the right broad ligament to the under surface of the liver. The peritoneal capsule was incised, and the tumour was gradually enucleated from above downwards. The chief vessels were found down in the pelvis, where the tumour had opened up the broad ligament. The cavity thus left was closed by a purse-string suture and the abdomen closed without drainage. The patient made a good recovery. Only two specimens of lipoma of the broad ligament appear to have been hitherto recorded.

Dr. C. HUBERT ROBERTS showed a large Ureteral Calculus, weighing 275 grains. The patient, aged 30, had been in several London hospitals since the age of 17 with symptoms pointing to renal calculus or tuberculosis. The diagnosis of ureteral calculus or calcified gland was made by Dr. Roberts in 1914, when the patient was pregnant. After delivery she was not seen until June 9th, 1916, when she was admitted to the Samaritan Hospital. On laparotomy the right ureter was at once seen, much dilated and thickened, above the stone. The stone was removed, drainage being provided by making an opening in Douglas's pouch through to the vagina. The patient made an uninterrupted recovery.

Dr. ROBERTS (for Mr. FRANK BELBEN) also showed a large Vesical Calculus weighing 3½ oz., formed around a slate pencil, and removed by suprapubic cystotomy from a girl aged 17. A small stone was also present. Some difficulty was encountered, as the bladder was contracted round the large stone and the pencil had ulcerated into the bladder wall. The patient made a good recovery.

Dr. ROBERTS also showed an instrument invented by the late Dr. Wallace, of Liverpool, for opening Douglas's pouch per vaginam during an abdominal operation.

Dr. CUTHBERT LOCKYER showed a series of Calculi: 1. Small calculus removed from upper part of ureter; good recovery. 2. Two calculi removed from lower end of ureter in patient, aged 63, being operated upon for uterine fibroid and solid ovarian tumour. The entire ureter was removed. Convalescence prolonged by formation of perinephric abscess, which was opened and drained. 3. Calculus from a patient from whom Dr. Lockyer had previously removed uterus, part of rectum, and part of vagina for new growth—an adenomyoma.[1] The calculus had formed at the recto-vaginal junction in consequence of a ureteric fistula. It was removed per vaginam. 4. Large calculus 5½ inches in circumference removed from bladder of patient who had a vesico-cervico-vaginal fistula, following difficult labour; calculus was removed during operation for closure of fistula.

Remarks were made by Dr. ROBERTS, Mr. DOUGLAS DREW, and Dr. GRIFFITH.

Dr. A. J. MCNAIR read a short communication on a case of entirely Concealed Accidental Hæmorrhage, with Intraperitoneal Bleeding.

Mr. CARLTON OLDFIELD and Mr. REGINALD HANN related a case of Acute Toxæmia of Pregnancy with Accidental Hæmorrhage, Treated by Cæsarean Hysterectomy; Recovery. It was suggested that accidental hæmorrhage is in some cases, like the one reported, a symptom of pregnancy toxæmia, and the opinion was expressed that in severe cases of accidental hæmorrhage, in which the cervix is closed, the patient should be delivered by Cæsarean section.

Dr. W. FLETCHER SHAW read a paper on Cæsarean Section and Hysterectomy for Accidental Hæmorrhage. In a very few cases of accidental hæmorrhage no method of treatment has the slightest effect upon the uterine muscle, which

[1] Trans. Royal Soc. Med., 1915, viii., No. 5, p. 47.

remains relaxed and allows severe hæmorrhage to continue. Of the six cases described, five were treated by Cæsarean section and the uterus was removed at the same operation; in the sixth case the child was delivered and hysterectomy performed some hours later because of a persistent flow of blood which treatment was powerless to check. These patients were all in a critical condition at the time; three died and three made a good recovery. They were all multiparæ and all had a very large amount of albuminuria. In five there were large hæmatomata in one or both broad ligaments, and in two there was a large quantity of free blood in the peritoneal cavity which had evidently escaped through some abrasions in the peritoneal coat of the uterus. As all these patients had a large amount of albuminuria, which cleared up a few days after delivery, in all probability the toxæmia producing this also produced the hæmorrhage. Dr. Fletcher Shaw emphasised the fact that he advocated this method of treatment only in the very rare cases where the uterine muscle would not contract

These papers were discussed by Dr. AMAND ROUTH, Dr. HERBERT SPENCER, Dr. H. BRIGGS, Dr G F. DARWALL SMITH, Dr. MUNRO KERR, and Dr. HASTINGS TWEEDY.—Mr. CARLTON OLDFIELD and Dr. FLETCHER SHAW replied.

Reviews and Notices of Books.

Welfare Work: Employers' Experiments for Improving Working Conditions in Factories.

By E. DOROTHEA PROUD, B.A. Adel., First Catherine Helen Spence Scholar. London: G. Bell and Sons, Limited. 1916. Pp. 363. Price 7*s.* 6*d.* net.

THIS book belongs to the series of volumes issued under the editorship of the Hon. Pember Reeves, entitled "Studies in Economics and Political Science"; the series consists of monographs by writers connected with the London School of Economics and Political Science. Miss Proud's volume is introduced to the public by Mr. Lloyd George, and the Secretary of State for War points out that of all the changes which the great struggle has brought in its train none is more significant than the revolution in the structure of British industry, indicated by the fact that many private firms of manufacturers have submitted to a general control by the State. Similarly many workers, who would otherwise have been unable to exercise the necessary discretion, have desisted from the endeavour to regulate the supply and restrict the output of labour. These things are noted as most important indications of the change of temper and opinion which has overtaken us all during the great struggle for freedom.

Miss Proud studies welfare work from every standpoint. In the first part of the book factory legislation is considered in its relation to employers and employed, and in discussing the ideals of a welfare worker we find very well described the attitude assumed by many sincere champions of the working class in the presence of welfare workers. Welfare ministrations, it is feared, may sap the resolution of the workers, an easy content being produced, under which individuals become content with their own lot and callous to that of their fellows. As welfare work appears to pay both the employer and the employees, we may expect under its influences a contented community though it be within a discontented State, but we cannot think that any real support of the social instinct comes from the feeling that the right to grumble must be maintained. Miss Proud is in agreement with other social workers in believing that welfare work does not predispose industrial peace and is not incompatible with trades unionism.

In dealing with the relation of work to workers, with industrial environment generally, and with the provision of lavatories, cloakrooms, and rest rooms for the workers, the author is highly informing, and we hope that her words will be widely read. The health of the worker, which is the particular sphere of the welfare department, should be a matter of deep concern to all of us, and in particular it is essential that the health of our women workers should be safeguarded, for women are, as Miss Proud says,—

Habitually less thoughtful than men concerning their own health, and a mixture of mock modesty and ignorance commonly prevents them from consciously considering themselves as potential mothers. Whatever changes may occur, the health of women workers must needs be of paramount importance to the nation. Their position in industry, even though partially safeguarded by legislation, is still unsatisfactory.

Miss Proud's remarks on wages and hours may not have any great novelty for those who have practical relations with the employment of labour, but the information is put well and justly, and those to whom the organisation of factory work is unknown will be able to read her words with full instruction. Under the heading incidental aids to welfare we come to a part of the book which is of more immediate medical interest; here, in a well-written section, factors that conduce to physical well-being—lodging, food, exercise, baths, and recreation—are considered. The facilities for recreation and social intercourse which are prevalent in various industrial centres are commended, but Miss Proud considers that, broadly speaking, it is well to leave the initiative in these matters to the workers, though the actual organisation has often to be taken out of their hands, the employers not infrequently retaining the control.

A series of appendices illustrate, among other things, the employers' influence on early factory legislation and their experiments in reduction of hours; and the development of a welfare department as seen in an individual outlined case. Specimen menus from factory dining-rooms and examples of printed forms used in various welfare departments help to complete the varied picture of factory life which is drawn in this interesting and competent book.

The Milk Problem in Indian Cities, with Special Reference to Bombay.

By LEMUEL LUCAS JOSHI, B.Sc., M.D., Municipal Analyst, Bombay. With a Foreword by JOHN A. TURNER, C.I.E., M.D., D.P.H., Executive Health Officer, Bombay Municipality. Bombay: D. B. Taraporevala, Sons, and Co. 1916. Pp. 232.

WHAT Dr. J. E. Lane-Claypon has done in this country by collecting all the important facts of milk and its hygienic relations Dr. Joshi has done for India, and his book is likely to remain for long the standard work on the subject. In the preface Dr. Turner alludes to the very unsatisfactory state of the milk-supply of the large towns in India which has existed for long enough, but to which attention is only now being turned. The milk, he states, is stored by the *gowlees* or indigenous agencies in dirty hovels, the brass containers are scrubbed with mud obtained from filthy sources, and milk is carried far in open cans with a floating wisp of dirty straw to prevent spilling. He expresses the hope that Dr. Joshi's work will, by placing the information in the hands of the public, enable them to coöperate with the authorities in obtaining better conditions.

The author begins with an account of Indian milch cattle and the milk-supply of Indian cities. An excellent series of plates illustrates the various breeds of cows and some of the conditions of stalling. The chemical composition of milk obtained from various sources follows and the proposed milk standards for India. The bacteriological examination of Bombay milk is then discussed and the adoption of a bacterial standard for India is suggested. The factors affecting the composition and purity of milk are dealt with, and then its relation to the public health, especially in regard to infantile mortality. Finally, remedial measures are given ample space, and are considered under the headings of economic, sanitary, and legislative.

We trust that the book may attract the attention which it merits and be a substantial factor in obtaining much-needed reforms.

European and Other Race Origins.

By HERBERT BRUCE HANNAY. London: Sampson Low, Marston, and Co., Limited. 1916. Pp. 491. Price 21*s.* net.

THIS is a very difficult book to read; an enormous amount of energy has gone to the making of it, but the huge mass of facts and suppositions which has resulted will not, we fear, attract the attention of any large audience, for readers will be puzzled by the author's method of approaching his subject, as well as by the somewhat indiscriminate and shapeless manner in which huge lumps of knowledge are handed out to them. We are not blaming the author for being obscure now and again or dry in this or that place, for his work is exhaustive, and the subject of race origins

can never be treated as a simple one. Mr. Hannay thinks, indeed, that the epoch we are living in is probably more portentous than any that mankind has yet witnessed, and we agree with him that under the influence of the war intellectual fetishes, before whose shrines learned and unlearned alike have knelt for generations, are, if not "shattered or tottering to their fall," considerably discredited as the collective wisdom of civilisation grows greater. He adds, however, speaking of these fetishes, that "some still command as successfully as of yore the blind unquestioning worship of the Many: for the Hierarchy whose place, power, and prestige depend upon the maintenance of these idols, are still strong—still disdainful of all who dare to whisper to their flocks aught of a creed that undermines or even challenges their own." This example of his style will show how difficult it is to understand exactly what is the meaning which he desires to convey.

The first and second sections of the book deal with the rise and developments of ethnic movements, in which we have the author's views of the origins of the Arabians, Jews, Dutch, and Germans, and the remarks upon the heterogeneous and artificial make-up of the last are historically sound. The third book describes the origins of the Scythians, the Scottish and Welsh, the Angles, Saxons, and Northmen, and various intermediate links in these nationalities. A long list of authors and works is given in support of the close array of statements of which the book is composed, and only thoroughly well-read ethnologists can form a just opinion as to how far the author has digested such masses of information properly and arrived at justifiable conclusions. To a medical audience the work, we think, will not prove very useful, while the many directions in which medicine can be associated with the study of race origins do not appear to have had attraction for the author.

MISCELLANEOUS VOLUMES.

THE increased demand for nursing owing to the war and to an awakening sense of the value of child life has led to much publication, and in the course of recent weeks we have received several books designed to facilitate the teaching of nursing and the related subjects of maternal and child welfare. Among those written for the trained nurse we may mention *Surgical and Gynæcological Nursing*, by EDWARD MASON PARKER, M.D., F.A.C.S., Surgeon to the Providence Hospital, Washington, D.C.; and SCOTT DUDLEY BRECKINRIDGE, M.D., F.A.C.S., Gynæcologist to the same institution. (London and Philadelphia: J. B. Lippincott Company. Pp. 425. Price 10*s.* 6*d.* net.) The authors attempt a summary of the procedures in general surgery and gynæcology of a nurse's professional work, and include in her scope a knowledge of infection, its pathology and nomenclature; minor technique, in its relation to posture; bandaging and the keeping of charts and records; the patient's comfort and welfare; and the operation and details of asepsis and instruments. A final section is devoted to the gynæcological dispensary, emergencies, the personal attitude of the nurse, and a useful epitome of some common surgical and gynæcological conditions set out in brief outline. The illustrations are numerous and informative.——*A Text-book of Physics and Chemistry for Nurses*, by A. R. BLISS, Junr., Ph.G., Ph.Ch., A.M., Phm.D., M.D., lecturer on chemistry and materia medica at the Grady Hospital Training School for Nurses, Atlanta; and A. H. OLIVE, A.B., A.M., Ph.Ch., Phm.D., lecturer on chemistry at the Hillman Hospital Training School for Nurses, Birmingham, U.S.A. (same publishers; pp. 239; price 6*s.* net), is another book from which the nurse may gain an elementary knowledge of science as it affects her work. The matter is necessarily condensed, but those portions of the subject which are of special interest to nurses are conveyed in a manner easy to be understood. The appendix contains a brief but clear exposition of the metric system, and there is a useful glossary.

As Mr. HAROLD CHAPPLE, obstetric surgeon to Guy's Hospital, points out in his Foreword to *A Text-book of Midwifery*, by JANE AITKEN (London: Ash and Company. Pp. 83. Price 1*s.* net), that in many text-books the facts are so skilfully concealed in a multitude of words that the average nurse or midwife finds it difficult to disentangle them. Miss Aitken's book consists of notes of lectures which she delivered in the capacity of chief midwife to the Nurses' Charity at Guy's Hospital and as superintendent of the District Nurses' Home at Gloucester, and it may well be used as an aid to intelligent study and to supplement and revise oral instruction.——The training of a nurse in the care of the insane requires special teaching and experience, and in *Mental Nursing* (London: The Scientific Press, Ltd. Pp. 98. Price 2*s.* 6*d.* net), Dr. W. H. B. STODDART reprints some lectures from the *Nursing Mirror*, in order to give to a prospective mental nurse some idea of the work he or she contemplates, and to furnish those actually engaged in mental nursing with a practical guide devoid of academic details.——Considerations of ethics are very important for the nurse in her relation to her own kind and to the medical man, and the study should not be neglected during her student period. In *Studies in Ethics for Nurses*, by CHARLOTTE A. AIKENS, formerly superintendent of Columbia Hospital, Pittsburg (London and Philadelphia: W. B. Saunders Company. Pp. 320. Price 7*s.* 6*d.* net), we have a text-book which embraces the whole life of the nurse, designed to aid both teachers and students. In addition to general instruction, the chapters contain illustrative cases which may arise in the course of the nurse's career, a list of questions for discussion or review being added to each. The book is readable and contains helpful advice.——*Urine Examination Made Easy:* A plan of examination with the common tests fully described by THOMAS CARRUTHERS, M.A., M.B., Ch.B. (London: J. and A. Churchill. Pp. 45. Price 1*s.* net), is the third edition of a little book which we have already commended to nurses, for whom it is primarily intended.

Voluntary Aid and Red Cross workers will find help from two little books by Miss ALICE SCOTT, published under the title of *Surgical Bandages and Dressings* (London: Percy Lund, Humphrys, and Co. Price 1*s* and 3*s.* 6*d.*). Both contain clear diagrams enabling anyone to make the various bandages required for wounded soldiers, while the larger book gives details of ward bags, slippers, shoes, and other things. Profits arising from the sale of these books will benefit the surgical branch of Queen Mary's Needlework Guild.——Another book for Red Cross workers is *Home Nursing*, by Miss E. NEWSOME (London: The Scientific Press, Limited. Pp. 159. Price 2*s.* 6*d.* net), which consists of lectures given to detachments of the British Red Cross Society. Miss Newsome, who has been a "special" schools nurse for the London County Council as well as a health visitor and inspector of midwives in a county area, is an able lecturer and her *vade mecum*, which is intended for use in the home as well for Red Cross nursing classes, is thoroughly practical.——An excellent little book for class teaching is *A Short Course on First Aid in Accidents*, by Lieutenant-Colonel Sir JOHN COLLIE, M.D., and Major C. F. WIGHTMAN, F.R.C.S. Eng. (London: George Gill and Sons. Price 3*d.*) Though brief, the information which it contains is very practical.——A fine example of compression will be found in *A Compendium of Aids to First Aid*, by N. CORBET FLETCHER, M.B., M.R.C.S. (London: Bale, Sons, and Danielsson. Third edition. Price 6*d.* net), in which everything essential to first aid is simplified and tabulated. Charts and ingenious mnemonics appear on nearly every page. Colonel Cantlie contributes an introduction, and we endorse his good opinion of the work.

Other more popular books call for brief notice. *Moore's Family Medicine and Hygiene for India*, Eighth edition (London: J. and A. Churchill. 1916. Pp. 672. Price 6*s.* net), is primarily intended for travellers and others in India who may find themselves far removed from skilled medical and surgical aid. The first edition, which obtained a prize offered by the Government of India in 1873, was written by Sir William Moore, Surgeon-General to the Government of Bombay. The present edition has been written by Major Cuthbert A. Sprawson, with the assistance of several other members of the Indian Medical Service, and incorporates recent advances in the knowledge of tropical diseases.——*A Handbook for Wives and Mothers in India*, by Dr MILDRED STALEY (Calcutta and Simla: Thacker, Spink, and Co. Pp. 344. Price 5*s.* net), is now in its second edition. The author's object is the prevention of disease in mothers and children during their sojourn in a tropical country, and her advice embodies the result of many years' experience in India. Particular emphasis is laid on the necessity for breast-feeding.——*To Wives and Mothers: How to Keep Yourselves and Your Children Well and Strong* is a little pamphlet compiled by the Association of Infant Welfare and Maternity Centres, and published by the

National League for Physical Education and Improvement, 4, Tavistock-square, London, W.C., price 3*d*. It contains a series of wise counsels selected from the pamphlets issued by the association. Information concerning feeding and common ailments, such as is here contained, cannot be too widely disseminated.—*Life Saving in War Time* emanates from the Infant Welfare Propaganda Committee of the National League for Physical Education (London: Arthur Pearson, Limited. Pp. 112. Price 1*s*.). The pamphlet is a vigorous plea for the preservation of child-life, showing not only what has been done, what is being done, and what can be done in this direction, but also what the individual can do personally. This "campaign hand-book," as it is described, may well be in the hands of the public, for it cannot be too often reiterated that the child is the nation's most valuable asset.

New Inventions.

AN IMPROVED APPARATUS FOR DARK-GROUND ILLUMINATION IN THE EARLY DIAGNOSIS OF SYPHILIS, ETC.

AT the present time the need for a really satisfactory plant for the detection of the Spirochæta pallida in the early diagnosis of syphilis is, I am sure, greatly felt. Now the most rapid and accurate method of detection is by means of the dark-ground apparatus, but the light which is used with this often fails to give sufficient definition. A good knowledge of optics will, no doubt, enable a comparatively feeble source of illumination to be used with satisfaction, but in routine work we do not desire to practise optics so much as to see the S. pallida.

With the object of obtaining a thoroughly reliable illuminant which is easily manipulated and always available without too many preliminaries, I have for some time past been working upon a design which is now completed and accessible to all, being of British manufacture and at a reasonable price.

The following are the special features of the apparatus:—1. Extreme compactness and reliability. 2. Always ready for immediate use, and yet, if so desired, can be returned to the cupboard from consulting-room table or laboratory bench without being dissembled. 3. The hand-fed compensating arc lamp requires the minimum of adjustment. 4. Suitable for use on any existing electric supply—continuous or alternating current—coming within the range of 100–250 volts. 5. Contact is made from a wall-plug or the bayonet fitting of an ordinary electric lamp. 6. The arc projects a good steady light with ample reserve, rendering differentiation between S. pallida, S. gracilis, S. microdentium accurate, rapid, and comparatively easy. 7. Adapted for any type of microscope stage. 8. The price, approximately five guineas, is reasonable, and the upkeep, even for constant daily use, inexpensive. The carbons for the arc lamp are readily obtainable. 9. Each constituent part is capable of an ample range of movement, thus rendering perfect adjustment very simple.

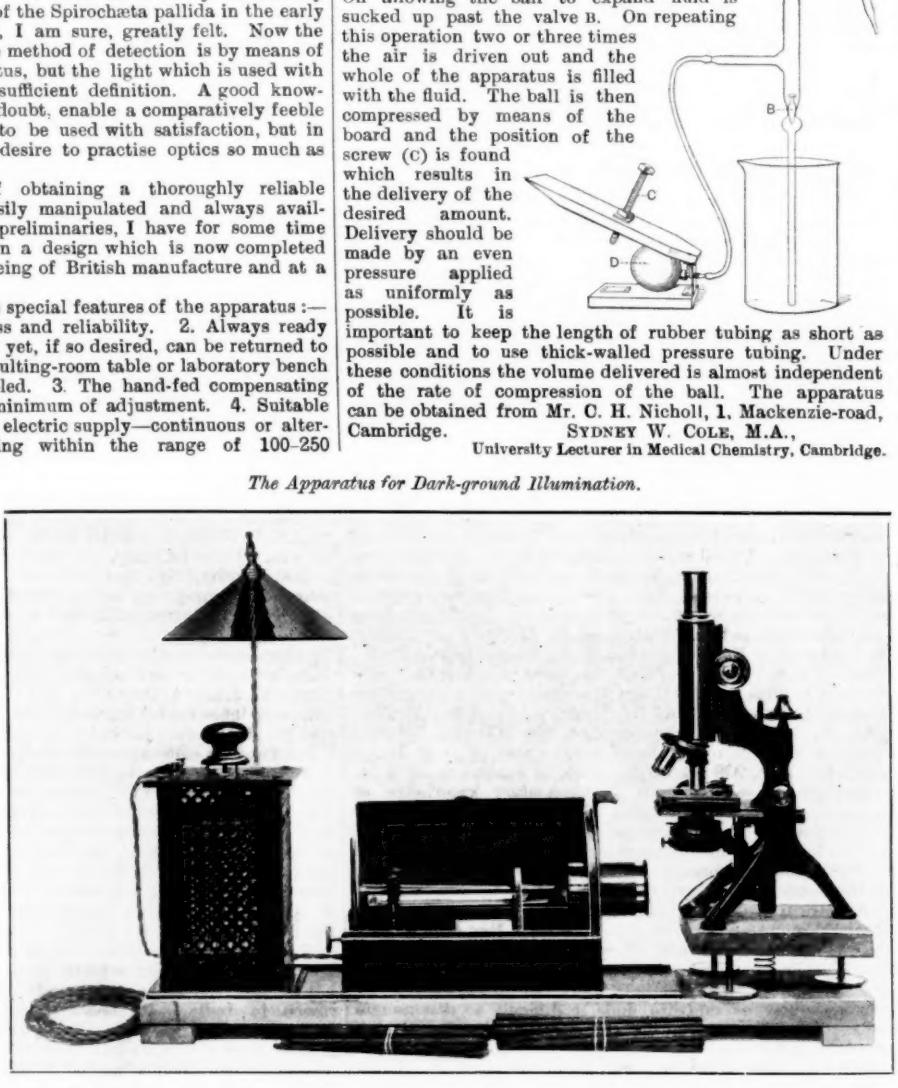
I am indebted to Lieutenant-Colonel L. W. Harrison, D.S.O., R.A.M.C., for having given me the benefit of his wide experience in this work, and for many practical suggestions which have helped me in the designing of this model, which is now installed in the Military Hospital, Rochester Row.

I would express my sincere thanks to the makers, Messrs. John Wrench and Sons, 50, Gray's Inn-road, for the prompt and careful manner with which they have carried out my instructions.

CLAUDE H. MILLS.

Cavendish-place, W.

The Apparatus for Dark-ground Illumination.

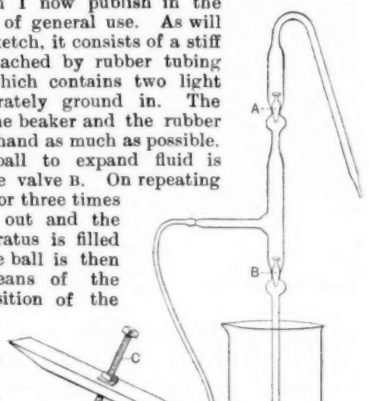


On the left: resistance. In the middle: hood of cover laid back to expose the compensating arc lamp which travels in exact alignment along runners on the base-board. A lens set in an adjustable sleeve is seen projecting. On the right: adjustable stand for the microscope.

AN AUTOMATIC DELIVERY APPARATUS FOR FLUID MEDIA.

(*From the Biochemical Laboratory, Cambridge.*)

DURING the course of bacteriological work undertaken for the Medical Research Committee it was necessary to tube a given amount of broth. For this purpose I devised a piece of apparatus which I now publish in the hope that it may be of general use. As will be seen from the sketch, it consists of a stiff rubber ball (D) attached by rubber tubing to a glass part, which contains two light glass valves, accurately ground in. The fluid is placed in the beaker and the rubber ball is squeezed by hand as much as possible. On allowing the ball to expand fluid is sucked up past the valve B. On repeating this operation two or three times the air is driven out and the whole of the apparatus is filled with the fluid. The ball is then compressed by means of the board and the position of the screw (C) is found which results in the delivery of the desired amount. Delivery should be made by an even pressure applied as uniformly as possible. It is important to keep the length of rubber tubing as short as possible and to use thick-walled pressure tubing. Under these conditions the volume delivered is almost independent of the rate of compression of the ball. The apparatus can be obtained from Mr. C. H. Nicholl, 1, Mackenzie-road, Cambridge.



SYDNEY W. COLE, M.A.,

University Lecturer in Medical Chemistry, Cambridge.

THE LANCET.

LONDON: SATURDAY, OCTOBER 21, 1916.

The Conference of Medical and Panel Committees.

THE Conference of representatives of Local Medical and Panel Committees of the British Medical Association will have opened its deliberations before the present number of THE LANCET appears, but a glance at the list of matters to be submitted for consideration[1] will show that definite conclusions are not likely soon to be arrived at. Among the topics included for discussion not the least important will be those arising out of Memorandum 229/I.C. recently issued by the Insurance Commissioners as a result of a conference with the medical members of the Advisory Committee and after further consultation with representatives nominated by the Insurance Acts Committee of the British Medical Association. The object of the Memorandum is to remove misapprehensions with regard to the present system of remunerating practitioners in respect of their services under the Insurance Acts, and to give them the opportunity to understand clearly the system in use. Criticisms are frequently launched in respect of remuneration as affecting medical practitioners, and complaints are made of injustice to groups or to individuals which involve the statement that the medical profession is not receiving what it was promised when National Insurance was introduced. In order to deal fully with this position the Commissioners set out their considered summary of what that promise was, and then proceed to explain the system adopted for fulfilling it. A clear understanding of the effect of his bargain is necessary for anyone who enters into a contract if he would charge the other party to it with failure in carrying out his obligations. For this reason a careful study of the Memorandum referred to is recommended to everyone who is not prepared simply to enter into the prescribed agreement and then to accept without question such remuneration as may subsequently accrue to him. The two essential facts to be borne in mind in respect of the income which any medical man may expect to derive from panel practice are to be gathered from the opening paragraphs of the Memorandum. They are, that the full annual sum to which he is entitled in respect of an insured person on his lists is only due if and when the liability to attend that person has lasted for a full year. If, for example, the patient has died or removed himself to another district after nine months, the amount due is three-quarters of the one year's fee and not the whole of it. Secondly, the amount actually paid in respect of the patients of any medical man in any year does not take into account each removal by death or otherwise of a patient from his list or each new addition to it, with the exact date of the incident. For example, he is not paid 362/365 of the annual sum due per patient in respect of a particular patient who has gone elsewhere after living for 362 days in his district, because to obtain and to apply such nice statistics in every case would be a task beyond the powers of those administering the Acts; it would entail something in the nature of a daily census of the insured population. In the words of the Memorandum, "The data for this direct method of calculation being unavailable, it was necessary to adopt some indirect method of calculation which would yield the same result, but based upon the use of data which could in practice be obtained." "The object of the Commissioners," to quote again from their Memorandum, "in framing the methods which they have from time to time adopted for calculating the payments to be made in respect of medical benefit, has been essentially that of devising a formula of a practical kind, which taking account of data which could in practice be obtained, shall at the same time yield, both to the profession generally and to individual doctors, the sum to which they are entitled under the general bargain."

The Memorandum proceeds to deal in detail with the three main heads into which its subject naturally divides itself, these being in effect the stages through which the money from various sources must necessarily pass before reaching the pocket of the medical practitioner on the panel. The funds applicable from all sources, including the amount collected from each society in respect of its membership, have first to be gathered together by the Commissioners; secondly, to be distributed among the Insurance Committees; and, thirdly, to be distributed by the Committees to the medical men on their panels. The methods by which calculation is made of the amounts distributable to individual Committees and to individual practitioners are set out fully in the Memorandum, and would be rendered less, rather than more, clear by any abbreviated summary here. They will, no doubt, be studied with interest, and the principle followed will be better understood in future by those who, in trying to protect themselves under their contracts with Committees, have found themselves baffled by the difficulty of understanding the procedure followed. The information has been there, no doubt, for those who cared to investigate, but it has for the first time been made plain to anyone having an hour to bestow on its consideration; and it is a little singular that the explanation now given was not prepared and published sooner. The general plan followed is explained and defended in the Memorandum, and its retention may be considered certain unless a system showing a very obvious prospect of better results can be proposed. Improvement in detail so far as it can be effected is promised, and it is suggested that steps are possible for rendering more accurate lists and index registers. War has naturally had an

[1] See THE LANCET, Oct 14th, 1916, p. 688.

adverse effect upon accuracy in these, and indeed upon the whole system, and although the Commissioners decline to admit that there is serious cause of complaint, the question of the lists in munition areas is evidently receiving their attention. This is one of the matters which must be discussed and settled now, even though we are in the midst of the war, because as soon as peace is restored the cause of complaint will disappear. There is beyond question a large influx of insured persons into munition areas, and, apparently, while they are well they remain in the list of their former doctors; it is only when they are ill that they take steps to be transferred to the doctor in the munition area. The Commissioners tell us that a large proportion of munition workers leave the munition area and return home directly they fall ill, and that this has a material bearing upon the contention that the doctors of munition areas are prejudiced by the present position. We are a little sceptical as to this, and should like to know the proportion of munition workers who retain their former homes when going to a new district, and who return thither so promptly on feeling unwell that they do not have time to consult a medical man in the munition area. This is a matter to be threshed out with a view to speedy settlement, in spite of the universal desire to avoid discussion and controversy while the nation is at war. In other respects the Memorandum appears to invite criticism and suggestion while insuring the relevancy of these to the actual facts of insurance administration.

Of other matters which we understand to be before the Conference the most important would appear to be the effect of the clause to be substituted for Clause 3 of the conditions of medical service in Schedule I. of the Medical Benefit Regulations, 1913. The provision of consultant medical service in insurance practice upon an extended scale is indicated, and the Memorandum (227/I.C.) issued to Insurance Committees on the subject is silent as to any increase of the ordinary practitioner's remuneration for what may prove to be a substantial increase in the work to be done. Paragraph 2 of the Memorandum refers to Clause 3 mentioned above, as requiring the panel doctor to advise the patient as to steps which he should take if in need of specialist or consultant service, but adds that this requirement is by no means exhaustive of his professional duties towards his patient, duties "which panel practitioners would themselves admit to be inherent in the professional relation of general practitioner to consultant or patient." The cases in which consultation has taken place are described as "comparatively rare," but the performance in connexion with them of professional duties, "such as furnishing particulars of the patient's clinical history or specimens for laboratory examination," is treated as if it were a matter of course, now to be made for the first time the subject of formal regulation. The medical profession has worked already for some years under an insurance system which it has done its best to render genuinely beneficial to its patients, though the spirit of medicine, as idealised by Dr. MITCHELL BRUCE in his address on another page, cannot flourish easily in such environment. But medical men are familiar with the conditions which panel service has hitherto implied, even if they have not understood the financial side of their contract. The performance, however, of certain admittedly desirable or necessary additional work in connexion with "comparatively rare cases," does not imply willingness to undertake the same duties gratuitously under what the Memorandum defines as "an organised provision of expert services now in process of development." The development contemplated by the Commissioners may be considerable, or the employment of expert services may in practice extend beyond the original intention of those responsible for the innovation. The Memorandum appears to have in view the introduction of expert services only for the treatment of venereal disease and of disabled soldiers and sailors discharged from service, but even within the limits thus suggested the increase of duties imposed will be grave. Acquiescence, therefore, without full inquiry would be dangerous in itself, and even more so as a precedent for the future.

The Interpretation of Laboratory Reports.

QUALITATIVE analysis of the urine has been practised for a century, but the methods of HELLER and of FEHLING were simple and could be used by the practitioner without a great outlay of time. The discovery of the bacillus, and especially of the tubercle bacillus in 1882, began to induce the clinician to seek the help of the laboratory worker; with the working out of the first serum reactions by BUCHNER and BORDET, 25 years ago, these relations became complete and final. It was impossible for the practitioner to find time to analyse the vital fluids of his patients as well as their symptoms, and the type of practitioner who placed no value upon the findings of the laboratory soon began to disappear. The pendulum doubtless swung too far, and for a time, when pathological work was new and seductive, there may have been certain minds which attached too high a value to this aspect and expected the clinical findings to fit in with the laboratory reports. There were men who could not see any clinical progress in a case until they knew what the white cells of the blood had to say about it. This type has also passed away. But there may still be some to whom the laboratory report is as a thing apart. To these, to take an example, the presence of albumin in the urine in a person presenting himself for life insurance connotes non-insurability. The urine is either free from albumin and the patient insurable, or albumin is present and the patient non-insurable. The Wassermann reaction is positive, the patient, therefore, has active syphilis; it is negative, and syphilis is excluded. Such an attitude is no longer consonant with the practice of the art and science of medicine. We draw attention on p. 723 to the

existing need of a link between laboratory and workshop; and the human body is the workshop of the pathological laboratory. The scientific practitioner must train himself in the interpretation of the laboratory report precisely in the same way as he has become trained in the interpretation of symptoms.

What conclusion, then, can the practitioner rightly draw when the laboratory report is negative? Is he to conclude the absence of the disease of which a positive report would have proved the presence? A negative Wassermann is a good case in point. The paper by Dr. WILLIAM FLETCHER on the luetin reaction, which appears in another column, clearly shows that this reaction and the Wassermann reaction, while both of them specific reactions in the sense that positive results only occur in syphilis—Dr. FLETCHER is excluding from consideration certain unusual conditions alluded to below—may fail to occur in any particular case of active syphilis. In the great majority of instances Dr. FLETCHER found one or other reaction to be positive; but in a given case, even though both reactions were negative, syphilis was not absolutely excluded. In his demonstration to the London panel practitioners last week Lieutenant-Colonel HARRISON took a good deal of trouble to elucidate the various interpretations to be placed on a negative Wassermann, according to the other findings in the case. In the first place, the case might be too early and the blood taken during the incubation period; a later report would then be positive. Or the patient might be, consciously or unconsciously, under the effect of antisyphilitic treatment; a short period of discontinuance of treatment would then result in the Wassermann becoming positive. Or the case might really be cured and the spirochæte infection finally abolished; here further assurance was to be gained by the employment of a "provocative" dose—that is to say, of a small intravenous dose of 0·2 or 0·3 gm. salvarsan (or of 0·4 or 0·5 gm. of neosalvarsan), with observation of the blood 7, 14, and 21 days later. Or, finally, the negative reaction might really be evidence of absence of syphilis, but only so on repeated examination and when all the other factors had been duly considered.

The positive Wassermann also has its various possibilities to consider. In the first place there are a series of conditions apart from syphilis in which the positive reaction has been found, most of them fortunately of rare occurrence or confined to tropical areas. Of these may be mentioned relapsing fever, yaws, trypanosomiasis, malaria and scarlet fever at the height of the fever, tropical ulcer, eclampsia, and certain skin diseases such as psoriasis and urticaria pigmentosa. The last-named are naturally the most likely to give rise to diagnostic difficulty, but the reaction in them is never strongly marked, and the difficulty may be avoided by using a non-syphilitic case of the same skin disease as a control. In the second place, the positive reaction may remain throughout life in cases which have not been efficiently treated at the outset. It is by no means an unheard-of thing for a robust man in late middle life to be found to have a positive reaction, and more than a little consideration must then be given as to whether or no treatment is indicated. These are a few of the points to be considered by the practitioner in receipt of a positive or negative laboratory report. Where the report is quantitative other considerations arise. But in any case the interpretation of the report is a matter for judgment and experience, and it will help pathologist and clinician alike that each should know the working of the other's mind. The arguments must be so prepared, or opsonised, by the one as to be capable of ready assimilation by the other.

Annotations.

"Ne quid nimis."

HIGH SPIRITS AND JUVENILE CRIME.

Memorandum No. 13 of the Health of Munition Workers Committee on the subject of juvenile employment contains a careful summary of measures for dealing with the health of young workers, particularly boys, and incidentally some concrete suggestions for checking the delinquencies which result from the present abnormal conditions of work. High wages, the lack of healthy recreation, the absence of paternal control, all tend to thriftlessness, ill-discipline, and their resulting evils. In a previous Memorandum of the Committee (No. 2, Welfare Supervision) the appointment of welfare supervisors in all factories where women and girls are employed was recommended, and the results are known to have been satisfactory. The new Memorandum No. 13 sets out the duties assigned to "Boy Visitors" in the scheme of welfare supervision which has recently been initiated at the Royal Ordnance Factories at Woolwich Arsenal. The visitors get into personal touch with the lad, keep an eye on his work, his health, and his morals, and report anything requiring attention to the proper authorities. The Memorandum emphasises the need for sympathy and personal supervision and deserves the careful attention of all who are directly or indirectly concerned with the welfare of the developing lad. That lads do respond in a remarkable way to improved environment is evidenced by the fifty-ninth Report of the Chief Inspector of Reformatory and Industrial Schools of Great Britain, which has just been issued in the form of a White Paper (Wyman and Sons, price 2½*d.*). In this report Mr. C. E. B. Russell gives as an item of his creed: "I believe practically every boy to be at heart good," and is prepared with facts and figures to substantiate his optimism. The following extract from his report in regard to the war record of previous scholars speaks for itself:—

> Up to March 1st, 1916, 29,920 of the old boys were known to be serving, 3884 in the Navy and 26,036 in the Army, of whom 1223 have been killed in action, 150 have died of wounds, 3501 have been wounded, 172 are missing, and 434 are known to be prisoners of war. Thirty-two boys have been mentioned in despatches, 69 awarded the D.C.M., 8 have been awarded the Russian Medal of St. George, 4th Class, 3 the French Médaille Militaire, and 1 the Croix de Guerre, while 19 have obtained commissions. Four boys have been awarded the Victoria Cross.

But the same spirit of adventure which has been responsible for these awards causes anxiety at home when it takes hold of the youthful crowd in the darkened streets at night, and in certain

neighbourhoods petty larceny has been reported with unpleasant frequency. In a letter to the *Times* last week Mrs. Humphry Ward suggests that local authorities should be obliged to provide a number of convenient play-centres for school children, as she believes that with some such outlet for high spirits the major part of the present difficulties would disappear. This is a view with which we agree. Whether under parental control or not, a large number of children have nowhere else than the street to exercise their minds and bodies. Open to grave objection at any time, this limitation is a direct incitement to misdemeanour with the increasingly early hour for lowering the lights. The Education (Administrative Provisions) Act of 1907 gave permission to local authorities to provide evening play-centres, and this provision might now be made compulsory.

THE PREVENTION AND TREATMENT OF VENEREAL DISEASES IN THE METROPOLIS.

THE London County Council is not going to delay in carrying into effect the recommendations of the Royal Commission on Venereal Diseases, and facilities for treatment are to be provided at the earliest possible moment. The problem of arranging these facilities throughout Greater London is a most difficult and complicated one, but it augurs well for the success of the scheme in hand that the Lord Mayor has convened a special conference of municipal and hospital authorities and representatives of the principal religious, educational, and social organisations to meet at the Mansion House on Oct. 24th. Addresses will be given by Mr. Herbert Samuel, the Home Secretary; Mr. Walter Long, the President of the Local Government Board; Mr. A. F. Buxton, the Chairman of the London County Council; and Lord Sydenham, the President of the National Council for Combating Venereal Diseases. Others who are announced to speak, besides the Lord Mayor, are Lady Barrett, M.D., Sir Thomas Barlow, and Sir Malcolm Morris.

WEIL'S DISEASE IN FLANDERS.

Weil first described the disease which bears his name in 1886. It is characterised by jaundice, pyrexia, hæmorrhages, and was apparently infectious, occurring either as widespread epidemics or in localised groups of cases. During the Gallipoli operations there was an extensive epidemic of jaundice, and it is possible that these cases may have included an anomalous type of the same disease; a recent paper in our columns on infective jaundice by Captain N. B. Gwyn, M.D., and Captain J. J. Ower, M.D.,[1] both of the Canadian Army Medical Corps, sufficiently shows the difficulties of diagnosis that may exist. The cause of Weil's disease was not known until 1914, when Inada and Ito reported the discovery of a spirochæta in the liver of a guinea-pig which had been injected with the blood of a patient suffering from this disease. The following year they concluded that such spirochætæ were the cause of Weil's disease. Later it was found that the blood of patients recovering from this disease contained protective substances against the spirochæta. Still later Japanese workers demonstrated the same spirochætæ in six specimens of patients' blood; in two cases which died on the sixth day of illness the spirochætæ were present in large numbers in the liver. They may also be found in the urine. The source of infection is not definitely known, but it is possible, it seems, that skin abrasions may be a path, as well as the alimentary canal. Captain Adrian Stokes and Captain John A. Ryle report in the September issue of the *Journal of the Royal Army Medical Corps* details of some 15 cases of Weil's disease in Flanders. In two of the cases it proved possible to infect guinea-pigs with the blood with typical resulting lesions and evidence of the spirochætæ. The general clinical picture is this: The patients complain of weakness and general soreness. Frequently there is pain in the eyes. Vomiting is often marked; sometimes there is epistaxis. On examination neither liver nor spleen was enlarged; the stools were of normal colour. Jaundice is marked. The pulse-rate is slow in proportion to the pyrexia. All cases showed enlarged lymphatic glands, most frequently the pectoral group of the axillary glands. All cases showed an irregular pyrexia. In six cases in which a blood examination was made, in only one were the spirochætæ easily found; in another a single spirochæta was discovered. The spirochætæ are rather straight and with curves resembling those seen in S. refringens. Side-to-side movements were well seen, and they were usually grouped. Cultivation was not attempted. The authors conclude that the experimental facts are sufficient to show that the cause of epidemic jaundice in Japan and in Flanders is identical.

[1] THE LANCET, Sept. 16th, p. 518.

THE MEDICAL DEFENCE UNION.

WE have received the annual report of the Medical Defence Union, which shows that the work has been increased by the war, as a great many questions have arisen out of the circumstances in which civilian practitioners have taken commissions with consequent absence from their practices. Partnership deeds have required amendment and alteration, and in some instances temporary determination; plans have had to be made for grouping of practices, and a large number of instances have occurred in which the members have derived advantage from belonging to the Union by receiving advice on such matters. The wives of many officers on active service have sought the help of the Union on numerous occasions on questions arising out of difficulties with assistants or *locum tenentes* or National Insurance Committees, and such help has always been given. Many matters affecting military law and customs have been dealt with, and in one instance a threatened court-martial was dropped owing to the intervention of the Union. This probably accounts for the fact that applications for membership have been sent from the front and candidates' forms filled up and forwarded from the trenches or casualty hospitals or field or base hospitals. Many letters have been received from those on active service who desired the Union to act for them in an emergency which had arisen in the home practice. Advice has also been sought under the Military Service Acts as to enrolment, and the secretary has been in constant touch with the executive of the Central Medical War Committee. The National Insurance Acts closely engaged the attention of the Union during the past year, and much good work was accomplished not only on behalf of its members but in the interests of the profession at large. During the year 50 cases in this connexion were placed in the hands of the solicitor to the Union, including various

appeals on the subject of surcharge. These were all conducted successfully on behalf of the members concerned. Various appeals were carried to the Commissioners against decisions of Insurance Committees concerning the conduct of the panel practitioners, and in each case undertaken a successful issue resulted. The report of the solicitor, forms interesting reading, and demonstrates the great value of belonging to such a society. The officials of the society, especially the general secretary, Dr. A. G. Bateman, and the solicitor, Mr. W. E. Hempson, together with the council, are to be congratulated on another successful year of work.

THE METROPOLITAN WATER-SUPPLY.

WITH a rainfall of 2·40 inches, or 0·18 inch above the average mean fall for June, the purity of the Metropolitan water-supply was fully maintained during that month. All the samples of water collected at the different works were, generally speaking, clear, bright, and free from suspended matter. The results of chemical examination showed that all three raw waters improved in quality during the month, as judged by the albuminoid nitrogen, permanganate, turbidity, and colour tests, with the exception of raw Thames water in regard to turbidity and colour. All the filtered waters improved in quality during the month, as judged by chemical and colour tests. When compared with the 1915 averages the raw waters showed results better than their respective averages, and the same observation was made as to the filtered waters. In regard to bacteriological results, these were consistent with the degree of purity shown by chemical results, all three raw waters containing less bacteria than their respective averages, while the filtered waters, generally speaking, yielded satisfactory results. They contained no typical B. coli, even when 100 cubic centimetres of the water were examined.

THE EFFECTS OF ANTITYPHOID INOCULATION IN THE ITALIAN ARMY.

A FURTHER contribution concerning the morbidity and mortality of typhoid fever in inoculated subjects may be found in some interesting observations by Captain F. Ravenna and Lieutenant A. Azzolini, of the Italian Army Medical Department, published in *Il Policlinico* (Practical Section, Sept. 17th). Comparing the course of the disease in 30 inoculated and 30 non-inoculated subjects, they found that rose-rash was present in 13 of the former and 25 of the latter, the spleen was enlarged in all cases, profuse diarrhœa occurred in 8 of the former and 12 of the latter, while hæmorrhage and intestinal perforation were apparently uninfluenced by inoculation. Broncho-pneumonia and renal complications, phlebitis, and otitis were, on the other hand, less severe and less frequent in the inoculated, and with these relapses were also more rarely met with. With regard to the height, duration, and type of the temperature, it was evident that while among the inoculated slight attacks were markedly prevalent, severe forms were common in the non-inoculated. Researches on agglutination were not conclusive owing to the fact that many of the subjects examined had undergone a mixed inoculation, and also because agglutinins are present in the circulation even nine months after the injections. With regard to the existence of antibodies capable of fixing the complement in the presence of typhoid antigen, these observers found that out of 20 inoculated there were 18 negative reactions and sometimes incomplete hæmolysis; out of 9 cases of typhoid non-inoculated there was one positive and 8 negative, and out of 24 cases which had been inoculated there were 4 positive and 20 negative reactions. It should be noted that in all the cases giving a positive reaction agglutination of Eberth's bacillus was also obtained, and this was moreover the case in many of those instances where there was a negative complement fixation reaction, so that there was an absence of a strict parallelism between these two sets of facts. In view of the large number of patients in whom a paratyphoid infection was ascertained or suspected, a definite opinion on the diagnostic value of this test cannot be given without further experiments with paratyphoid antigens, although Dean's observations tend to show the existence of a complement deviation analogous to what takes place by agglutination.

THE REGULATION OF PROSTITUTION AND OF VENEREAL DISEASE IN SWEDEN.

IN a series of annotations we have reviewed the measures proposed by the Swedish Royal Commission on Venereal Disease, and we have shown how practically every proposal has been criticised in various quarters. After collecting and analysing these criticisms, the Swedish Board of Health has published its own views on these proposed measures, of many of which it strongly disapproves. The Board of Health points out that the Commission's investigations have shown regulation and inspection to be ineffective in controlling venereal disease; yet the Commission seems to have compromised between the logical conclusions to be drawn from its investigations and the fear of completely discarding an out-of-date system of regulation. In the opinion of the Board of Health, the Commission should have had the courage of its convictions and, following the example of the authors of the minority report, should have expressed in its proposals the conviction that regulation, in whatever form, is of doubtful value. Instead of taking this logical step, the Commission has first laid bare the faults of regulation, and has then proposed compulsory measures which constitute merely a new form of regulation, deprived of the most offensive features of the present system, but retaining all the characteristics of a genuine system of regulation. The Board of Health further considers that the positive factors in combating venereal disease, which the Commission has investigated and discussed, are not very imposing. Indeed, the Commission's many years' labour would appear from this verdict to have given a negative result. There is, however, at least one point on which the Board of Health agrees in principle with the Commission, and that is with regard to punishing persons who knowingly convey venereal disease to others. As the spread of venereal disease is almost wholly due to promiscuous cohabitation, the Board of Health considers it perfectly justifiable to make it a penal offence for anyone suffering, or suspecting that he is suffering, from venereal disease in an infectious stage to indulge in promiscuous cohabitation. Such a penal law, it is urged, would undoubtedly be a powerful check on the spread of venereal disease; it should be clearly defined and incapable of arbitrary interpretation or elasticity of administration. The maximum punishment for habitual offenders should not be less than two years' penal servitude. The

Board of Health does not anticipate serious difficulties in securing a conviction under such a law. It is illustrative of the difficulties arising out of the reform of prostitution and attempts to suppress venereal disease that the Commission has been unable to issue a unanimous report, two of its members dissenting in many respects from the majority report; the Board of Health has also been unable to point a way to reforms endorsed by all its members.

UREA IN PLANTS.

THE occurrence of the enzyme urease, which readily converts urea into ammonium carbonate, in plants, and more particularly in the soy bean, a leguminous plant named Glycine hispida, has naturally led to the suggestion that urea is probably a constituent of the vegetable kingdom. The suggestion is interesting inasmuch as we have for long regarded urea as exclusively an animal product. In an interesting paper read by Dr. Walter G. Smith before the Section of Medicine of the Royal Academy of Medicine in Ireland, and now published in the Transactions of the Academy, urea appears to be a fairly universal constituent of plants. It occurs, at all events, to the extent of as much as 3·5 per cent. in ripe specimens of a fungus Lycoperdon bovista, and it has further been found in wheat, barley, maize, peas, clover, and beans. It has also been detected in endive, some species of cucumber, brassica, spinach, carrot and potato, and so, as Dr. Smith points out, we must recognise that plants, without the help of micro-organisms, can directly form urea as a product of nitrogen metabolism. Another link is established in this way between the metabolism of plants and animals. Professor Bayliss states that there does not appear to be any urea in the soy bean itself, for extracts of the seed do not yield any ammonia. He suggests that the germinating seed may contain the enzyme arginase which would produce urea from arginin. The urea on hydrolysis by urease would then serve as a nitrogen food for the plant. The action of urease is quantitative, and is now utilised in the accurate estimation of urea in urine, its conversion into ammonium carbonate admitting of alkalimetric methods. These observations are of great interest, as they not only break down once more an old distinction, but they throw a fresh light on the metabolism of nitrogen substances, and incidentally give us a new and accurate analytical procedure.

THE NOTIFICATION OF TUBERCULOSIS IN IRELAND.

AN Irish correspondent has called attention more than once to the curious fact that while tuberculous phthisis is frequently notified in Dublin it is quite rarely notified in Belfast. The population of each city being between a quarter and half a million and the numbers of notifications being nearly constant from week to week, it was obvious that some difference of practice must be present. The discrepancy is explained by a careful study of the Tuberculosis Order for Ireland, which differs in several essential respects from the General Order for notification of tuberculosis as issued by the Local Government Board for England on Dec. 19th, 1912. In the first place, the Irish Order applies solely to the form of tuberculosis "known as tuberculosis of the lung," and only to this when the medical practitioner in attendance considers that the sputum discharged by the person suffering is liable to communicate the disease to other persons. Furthermore, notification is only required in case the person (1) habitually sleeps or works in the same room as any other person or persons not so suffering; or (2) is employed or engaged in handling, preparing, or distributing food intended for sale to the public. The person, therefore, who lives in one room readily escapes notification, and it is open to the practitioner, if he wishes, to arrange for the nursing of most of his cases in such a way that notification is not compulsory. Differences in individual practice may accordingly readily account for the different figures obtained in Belfast and Dublin, which give no real insight into the relative prevalence of tuberculosis in the two cities. Whilst notification as practised in Ireland may serve to call the attention of the public health authority to infectious cases occurring in unhygienic surroundings, it obviously cannot be expected to give a complete picture of the prevalence of tuberculosis in any area or district. Notification in Great Britain is gradually becoming a sound basis for the initiation of preventive and curative measures; it has resulted in tracking down an immense number of "contacts" in an early and curable stage and in linking the problem of tuberculosis ever closer with the housing problem. Ireland, with its high death-rate from tuberculosis, is equally in need of these measures and is unfortunate in possessing a less effective notification order.

THE THYMUS GLAND IN "THYMUS DEATH."

"Thymus death" is one of the unsatisfying and unsatisfactory diagnoses often made in cases of sudden death in infants and children. It is said that the patients have suffered from the condition entitled the status thymicus, status lymphaticus, or, to kill two birds with one stone, the status thymico-lymphaticus. Such sudden death may occur in many ways, and if we go briefly over very familiar ground it is only for the sake of clearness. In some infants, children, and young adults "thymus death" happens early in the administration of an anæsthetic. In others the symptoms are those of a sudden and fatal attack of shortness of breath, and the death is attributed to "thymic asthma." In a third group of cases the child dies suddenly in its sleep, in an attack of bronchitis or diarrhœa, or in the course of some other disorder such as rickets that had not been thought at all dangerous. Yet other varieties of "thymus death" have been described, with the result that the diagnosis has become suspect and is not recognised at all by many physicians, surgeons, and anæsthetists. Pathologists, on the other hand, are more inclined to accept it, perhaps because the discovery of an apparently enlarged thymus and an abnormally developed system of lymphatic glands and follicles offers a convenient explanation of the occurrence of sudden deaths that are otherwise inexplicable from the point of view of morbid anatomy. Alternatively, of course, these sudden deaths may be attributed to anaphylaxis; but here, again, the diagnosis is not wholly satisfying or demonstrably correct. The literature of the subject is very large, and has recently been added to by Dr. J. A. Hammar.[1] He notes that "thymus death" has very generally been attributed to hyperplasia of the thymic medulla, or else to a low ratio of the cortex to the medulla of

[1] Svenska Läkaresällskapets Handlingar, Stockholm, 1916, xlii., 867.

the gland. Dr. Hammar has made careful microscopical and numerical examinations of the thymus glands in 16 cases of sudden death in infants and children, the material being supplied to him by various Swedish colleagues. He gives details of the observations he has made, and also sets them out statistically in curves and tables. His attention has been devoted to the relative amounts of cortex, medulla, and interstitial tissue in the thymus glands, and also to the relative and absolute numbers of the Hassall's corpuscles in them, in view of the fact that "thymus death" has recently also been attributed to excessive "epithelialisation" (or deposit of Hassall's corpuscles) in the gland. Two of his 16 cases were instances of "true thymus death," 5 were patients with acute bronchitis, 2 had broncho-pneumonia, the others had rickets or were suffocated by mucus from the gastro-intestinal tract in the air-passages, and 1 had tonsillitis. In all of them death was associated with some enlargement of the thymus gland. Dr. Hammar finds that the normal newly-born child has a thymus weighing from 9 to 22 grammes, and averaging 13 grammes. Such an average thymus contains about 800,000 Hassall's concentric corpuscles, the figure varying from rather less than half a million to a million and a third. Between the ages of 1 and 5 the average weight of the thymus is 25 grammes, the figure varying between 14 and 31 grammes; between these ages the average thymus contains about 1,100,000 Hassall's corpuscles, the extremes being 600,000 and 1,900,000. Summing up, Dr. Hammar comes to the conclusion that in cases of sudden death from internal causes in infants and children the thymus gland is, as a rule, of normal size and of normal histological structure. Even in cases of "true thymus death" there is nothing to indicate any functional abnormality of importance in the thymus gland; the thymus shows no constant abnormality in the quantity or proportion of its medulla; the histological variations found fall within the normal, established by examination of the thymus glands from infants and children who have met with accidental death. Dr. Hammar is inclined to search the endocrine glands generally for the cause of death in these cases and to absolve the thymus gland from all responsibility.

THE Acting Registrar of the General Medical Council is informed that an Order of the Privy Council postponing the elections of Direct Representatives, which would otherwise be held before the end of the year, may be expected in a few days.

AT the first meeting of the session of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Friday, Oct. 27th, at 8.30 P.M., a paper will be read by Captain C. G. Moor, R.A.M.C., on the Work of a Sanitary Section at a Base. Any officer of the Army or Navy Medical Services or the Indian and Colonial Services will be cordially welcomed at the meeting.

ROYAL NAVAL HOSPITAL, STONEHOUSE.—The Medical Director-General of the Navy (Surgeon-General Sir Arthur W. May) recently visited the Royal Naval Hospital, Stonehouse, where he was received by Surgeon-General W. H. Norman. He inspected the medical and surgical wards and expressed his appreciation at the provision made for the sick and wounded patients. On the following day the Medical Director-General inspected the medical establishments at Devonport and Plymouth.

THE LINK BETWEEN THE UNIVERSITY AND THE FACTORY.

INTERESTING demonstrations were given in the Universities of Leeds and Sheffield last week of the facilities which the great technological schools of the Universities are offering for carrying out scientific research. It was announced that similar demonstrations would follow shortly at Manchester, Liverpool, and Birmingham Universities. Situated as the Universities of Leeds and Sheffield are in the midst of great industrial activities, it is encouraging to learn that the work of scientific research is being prosecuted on behalf of the manufacturers, and already some important examples of new advances may be definitely traced to the coöperation of the workshop and the University laboratory.

Sheffield has been severely handicapped by the serious depletion of its students eligible for the war, but in spite of this the work done in the engineering and metallurgical departments has been of the utmost importance to the nation in the hour of its trial. The pure science side of the teaching at this University, as the Dean of the Faculty of Pure Science explained, has been rapidly developed to meet any demands made either by the city, which has, of course, a large stake in the University, or by industry now or after the war is over. Schemes have been set on foot for the training of chemical engineers for which so great a demand exists at present, and of research chemists of a type so urgently in request by many firms engaged in the large chemical industries mobilised for war purposes. A new department of technology dealing with glass has been created which it is hoped will become national in character. This has been organised with the financial support of the Advisory Committee of the Privy Council for Industrial Research, of the Ministry of Munitions, and of the glass manufacturers on the one hand, and of the Sheffield University Council on the other. Suitable buildings for research work in glass technology are in process of erection, but in the meantime the work is being carried out with very promising results in the chemistry department. Amongst other work that has been taken up is the preparation of local anæsthetics formerly made exclusively in Germany, the provision of substitutes for materials formerly imported from the continent and largely used in local industries submitted by various firms. Altogether there are sure signs that the assistance which the University of Sheffield is in a position to give to trade and industry is being increasingly appreciated by the community.

At Leeds a most interesting demonstration was given in the various departments by the respective professors. The department of organic chemistry deals mainly with those branches of science which underlie many of the most important technical processes, and provides a training for a large number of students who desire preparation for the great variety of industrial processes dependent on chemistry, such as the manufacture of dyes, explosives, and drugs, and the leather-dyeing, coal-tar, and fuel industries. This department has been actively engaged in several directions in the service of the country connected with the war. At the request of the War Committee of the Royal Society this department undertook the preparation of novocaine and eucaine, and a sufficient supply of the former has been made already. The preparation of eucaine continues. The chloramines are prepared in these laboratories as well as the hypochlorite boric acid mixture, the manufacture of which on a large scale is now in the hands of several firms of chemical manufacturers. There was on view also a collection of British-made dyes and drugs produced since the war, which are rapidly forming the basis of new industries, and this afforded a remarkable ocular proof of British energy well directed. The collaboration of science and industry was further fully illustrated in a special technical department representing what was being done for the great leather industries. The work of the bacteriological laboratory of this department since the war has been devoted to the production of culture-media required by the hospitals for the isolation and identification of disease germs. Besides all this, the technical department is busily engaged controlling the output of toluene and benzene from coal-gas and making examinations of high explosives.

The recent visit made by a representative group of enquirers and observers to the Universities of Sheffield and

Leeds proved of a most interesting and instructive character, and there can be little doubt that the value of coöperation between science and industry is being rapidly appreciated. The old rule-of-thumb policy and practice of our manufacturers must eventually disappear, much to the advantage of the nation's prestige in the industrial field. Both at Sheffield and Leeds the visitors were received by the Vice-Chancellors respectively of the Universities, who rendered a scholarly account of what these centres of education were doing to raise the status of technology. In each case the party of visitors proceeded from the University to the great factories and works—steel, leather, and textiles—where they could see for themselves how the fruits of scientific research of the University were being utilised with the most valuable results. A magnificently important movement has been set on foot the consummation of which will enhance very considerably the welfare and prosperity of the nation.

For the most part the visitors represented a circle of scientific, technical, and trade journals forming a section of the Institute of Journalists, which body may be congratulated on organising a movement for informing the public of the practical progress that has been and is being made.

BACILLARY DYSENTERY AND B. ENTERITIDIS (GAERTNER) INFECTIONS.

THE following Memorandum records the extension of the supply of standards from the Department of Pathology at Oxford and is issued to meet the convenience of bacteriologists at military hospitals and assist the coördination of results obtained by different observers at different times and places. The Medical Research Committee have made arrangements for the preparation and supply of sterilised Standard Agglutinable Cultures and Standard Agglutinating Sera, for the diagnosis of certain intestinal infections by means of macroscopic agglutination tests.

The preparation of standard cultures and sera carried out in the Department of Pathology, Oxford, under the direction of Professor G. Dreyer, has now been extended to include B. dysenteriæ (Shiga, Flexner, and Y.) and B. enteritidis (Gaertner), in addition to B. typhosus, B. paratyphosus A, and paratyphosus B. The standard cultures and sera will be supplied by the Medical Research Committee free of charge to pathologists working in connexion with military hospitals. Applications for the standard cultures or sera should be addressed to the Standards Laboratory, Department of Pathology, University of Oxford (telegraphic address, "Pathology, Oxford," telephone, Oxford 467).

To facilitate the performance of agglutination tests under service conditions or otherwise, a special outfit has been prepared. This consists of a special stand, dilution tubes, agglutination tubes, and two dropping pipettes, which can be obtained free of charge by pathologists working for military hospitals upon application to the Medical Research Committee, 15, Buckingham-street, Strand, W.C., or may be purchased from Messrs. Baird and Tatlock, 14, Cross-street, Hatton-garden, E.C., or from Messrs. R. B. Turner and Co., 9, Eagle-street, Southampton-row, W.C., price 4*s.* 6*d.* each set. Full directions for use will be sent out with each set of apparatus and with all standard cultures. And under service conditions the standard agglutinable cultures will be supplied in quantities sufficient for all ordinary routine work. When application is made for them the probable weekly number of agglutination tests to be made should be stated.

The standard agglutinating sera for B. dysenteriæ (Shiga, Flexner, and Y.) and B. enteritidis (Gaertner) will be provided either for the identification of these several forms or for the use in the standardisation of killed agglutinable cultures.

The use of the standard agglutinable cultures, with the set of apparatus as provided, is believed to offer the following advantages:—1. The procedure is simple and rapid. 2. The materials are always ready, and no cultures have to be incubated and prepared. 3. The culture is killed and all risk of infection is absent. 4. The reaction can be carried out at any temperature between 35° C. and 56° C., or even at room temperature if necessary. 5. No microscope is needed. 6. Owing to the precise quantitative determination which it allows, the method enables the worker to follow the course of the agglutination curves obtained by successive examinations, and thus facilitates the diagnosis of active disease. 7. The results obtained possess standard uniformity even in relatively unpractised hands, and are strictly comparable from case to case and from day to day, wherever the tests are performed. The expression of the results in standard agglutinin units allows the comparison of extensive series of observations in different laboratories and at various times for statistical or other purposes.

The Medical Research Committee point out that the standardised cultures and sera already provided for B. typhosus, B. paratyphosus A, and B. paratyphosus B have been in use at the chief military laboratories engaged in work upon enteric fever cases and carriers with the Expeditionary Force and at home for over a year. It is hoped that in the interests of uniformity of results and the unification of records the new standards now made easily available may be generally adopted.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Academy of Medicine in Ireland.

THE annual meeting of the Royal Academy of Medicine was held on Oct. 13th. The General Council reported that the number of Fellows was 144, of members 17, and of student associates 8, compared with 149 Fellows, 16 members, and 5 student associates in the previous session. Several meetings had been abandoned at the end of last session owing to the rebellion and the subsequent state of martial law. The annual elections resulted in the election or re-election of the following officers: President: Dr. R. D. Purefoy; general secretary: Dr. J. A. Scott; secretary for foreign correspondence: Sir John W. Moore; and of the following as presidents of sections: Medicine, Dr. H. C. Drury; Surgery, Mr. W. Taylor; Obstetrics, Dr. G. FitzGibbon; Pathology, Dr. E. J. McWeeney; Anatomy and Physiology, Professor E. J. Evatt; State Medicine, Dr. W. A. Winter.

Scene at an Asylum.

At the last meeting of the committee of management of the Ballinasloe District Asylum Mr. John Mills, who had been assistant medical officer for 23 years, was elected resident medical superintendent. An extraordinary scene ensued. The news quickly reached the inmates of the institution and loud cheers could be heard from all parts of the building. Several of the patients came from the dining-hall and demanded the doctor's presence. On emerging from the board room he was seized by the patients, who put him on their shoulders, and amidst great cheering he was carried through the corridors.

Proposed Midwifery Legislation for Ireland.

The Local Government Board for Ireland is engaged in drafting a Midwives Bill for Ireland on similar lines to those of the Scottish Bill, and has recently had a conference with a medical committee appointed on the initiative of the Irish Medical Association. It is understood that the two bodies are in substantial agreement. The Local Government Board accepted a suggestion of the committee that the period of practice entitling an existing midwife to register should be three years instead of one year as in the Scottish Act. The Board has promised to consult the committee again before the draft Bill leaves its hands.

Royal Humane Society: Awards to Irish Medical Men.

The last list of awards made by the committee of the Royal Humane Society for gallant actions in saving, or attempting to save, life contains the names of two Irish medical men. Mr. Cornelius Hickey, of Kilkee, is awarded a bronze medal for saving a man and woman from drowning at Kilkee. The woman first got into difficulty, and the man, going to her help, was also in danger. Mr. Hickey, though fully clothed, swam to their assistance, and rescued both. Mr. James Roberts, of Limerick, was awarded a testimonial for his courageous rescue of a man from a rough sea at Kilkee.

A New Type of Epidemic in Belfast.

During the past month many varieties of a disease presenting some unique clinical features have been met with in Belfast. Some of the cases are ushered in with high temperature and diarrhœa, others have no temperature and very slight relaxation of the bowels, but all have certain features in common—loss of appetite, general malaise, and abdominal pain. The last symptom is the most characteristic; it occurs mainly over the lower abdomen and is attended with

tenderness on pressure, sometimes markedly on the right side, and the first idea that is suggested to the medical attendant is that an attack of appendicitis is threatening. The pain, however, soon moves to other parts of the abdomen, especially along the course of the large bowel, and the subsequent history of the patients seems to indicate that the colon has been the seat of some bacillary affection. In other cases during the convalescence pains of a "myalgic" nature occur in the back and in the limbs. Some medical men who have been at the front think the cases bear a certain resemblance to a type of the "trench fever," some of which, it appears, have at first been mistaken for appendicitis. Fortunately, in Belfast the great majority of those attacked, whether the onset is sudden and severe or more gradual and mild, soon recover. It has been common in former years to have cases of ordinary autumnal diarrhœa at this season, but the present epidemic is of an entirely different nature, its most characteristic feature being the abdominal pain and acute tenderness on pressure.

Doctors and the Military Age.

On Oct. 14th Mr. J. J. Todd, medical officer of Omagh Dispensary District, asked for temporary leave of absence and tabled a certificate from a famous cardiac specialist to the effect that the state of his heart made it necessary that he should have a period of rest. The Board, after a discussion, granted sick leave to Mr. Todd, and appointed Dr. D. F. Murnaghan as temporary substitute, but he is of military age and so ineligible.

Oct. 17th.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Temporary Surgeons: T. W. Robbins and J. A. M. Alcock.

ARMY MEDICAL SERVICE.

Temporary Colonel Henry A. Thomson, C.M.G. (Captain, R.A.M.C., T.F.), relinquishes his temporary commission.

ROYAL ARMY MEDICAL CORPS.

Major A. E. Snell, C.A.M.C., to be Assistant Director of Medical Services, and to be temporary Colonel whilst so employed.

Major E. E. E. Powell, from Supernumerary List, to be Lieutenant-Colonel, vice Lieutenant-Colonel J. S. Green, placed on retired pay.

Major (temporary Lieutenant-Colonel) F. S. Irvine, D.S.O., to be Lieutenant-Colonel.

The undermentioned are granted temporary rank whilst employed at the Manor (County of London) War Hospital:—As Lieutenant-Colonel: W. I. Donaldson. As Major: S. C. Elgee.

Temporary Captain F. G. W. Deane to be temporary Major whilst in charge of the Springburn and Woodside War Hospital.

To be temporary Captains: S. K. Adams, T. Redmayne, H. Fraser, Lieut. W. A. Costane, C.A.M.C., and Hon. Major N. C. Wallace, C.A.M.C.

Temporary Captains relinquishing their commissions: H. J. Hutchens, A. G. Mossop, G. M. W. Hodges, A. D. Haydon, A. M. Fisher (on account of ill-health), T. G. Moorhead, W. Templeman (on account of ill-health), and P. Northcote.

Temporary Lieutenants to be temporary Captains: J. Pirie, F. McE. Sinclair, W. J. Hicks, J. W. Riddoch, A. L. Badcock, D. A. Evans, J. C. Hindley, J. S. Gilchrist, J. D. Watson, J. M. Macfie, W. G. D. McCall, J. V. Grant, W. Cunningham, J. A. Leiper, P. C. Davie, J. C. Knox, F. G. Cross, T. H. Sarsfield, N. B. Laughton, F. R. Sturridge, J. P. Lusk, H. R. W. Husbands, J. T. MacKenzie, T. J. Gilmore, M. S. Bryce, J. Campbell, C. C. B. Gilmour, D. M. R. Crighton, R. F. Linton, A. L. Anderson, F. J. Hathaway, G. B. McTavish, G. Walker, A. W. P. Todd, A. H. Coleman, T. Pretsell, J. Beatty, G. F. Gill, T. J. Buckley, J. C. Boyd, J. McKie, E. J. Storer, L. C. Martin, M. Sommerville, J. S. Findlay, P. C. Litchfield, J. Watson, R. A. Fuller, J. Philp, E. G. B. Calvert, P. Sturrock, J. E. Taylor, J. B. Thackeray, A. G. Winter, H. H. Mathias, L. M. Ingle, J. A. Liley, J. L. Graham-Jones, H. P. Newsholme, J. K. Morton, V. G. Williams, G. Marshall, R. L. Norman, F. L. Pelly, H. J. Bell, T. F. Shackleton, C. G. A. Chislett, G. F. Oldershaw, W. Shanks, G. O. Connell, F. W. Joynes, F. J. Kirkness, A. G. Mowat, A. A. Miller, H. P. Crampton, R. W. Shegog, J. F. Hoare, A. C. T. Woodward, J. L. Hendry, G. W. Charsley, W. Fairclough, W. B. Thompson, T. B. Riddall, J. R. Dobbin, J. MacKinnon, C. C. Irvine, L. M. Rowlette, D.S.O., C. S. Van R. Harwood, J. D. O'Connor, A. G. Naismith, E. G. Fenton, R. L. Ley, O. A. J. N. Muriset, T. Kelly, S. Bryson, H. J. Flanigan, W. W. Uttley, G. H. Powell, M. Davidson, J. F. Bullar, G. M. Grant, C. S. Pantin, W. H. Best, J. M. Anderson, W. Warburton, A. Stodart Walker, C. M. Stubbs, G. F. Fawn, R. Park, W. N. Gilmour, A. E. Huckett, F. G. Martin, W. Core, J. H. C. Gatchell, E. T. Jones, F. B. Manser, J. E. McCartney, W. E. A. Buchanan, R. P. Kennedy, R. J. Aherne, R. N. Farrer, W. Herberteon, E. W. Craig, A. H. Murch, E. C. Mackay, A. S. Hendrie, A. G. Hamilton, P. Gettleson, J. Joule, R. J. Cane, W. Stanwell, D. J. McAfee, G. Coates, E. G. Evans, F. R. Snell, R. Felton, E. Brown, V. M. Fisher, W. Millerick, D. F. Macdonald, R. A. Fawcus, S. R. Lane, G. L. Parsons, F. Dillon, O. A. Beaumont, W. A. Clayton, A. Macintyre, W. G. Macdonald, G. W. Riddel, F. N. Brown, N. F. Lock, H. Young, L. R. Thomson, B. A. Cheadle, C. E. Meryon, G. G. Bruce, J. G. Castellain, A. C. West, J. G. S. Mennie, M. B. Lindsey, F. C. Plummer, A. B. MacLean, B. C. Scott, R. B. John, D. Dunlop, E. V. Frederick, W. J. M. Marcy, J. W. Littlejohn, W. R. W. Asplen, A. Brown, D. Fisher, W. T. Finlayson (from Unattached List), R. C. MacQueen, A. H. Style, and M. G. Dobbyn.

Temporary Hon. Lieut. W. E. Coe to be Temp. Hon. Captain while employed with the St. John Ambulance Brigade Hospital.

Temporary Lieutenants relinquishing their commissions: J. Macnamara, A. S. Robinson, M. M. Adams, J. L. Wilson, A. Todrick, J. S. Doyle, W. A. Costain, E. R. Holborow, A. W. Cassie, J. Bain, H. G. Ward, H. A. Bodkin, R. V. Howell, H. J. Foote, J. Wyper, N. Bradley, C. D. Halcomb, R. E. B. Yelf, A. Gardner, F. MacRae, R. Fox, J. MacM. Watson, R. A. Wilson, H. I. G. Rutherford, E. Doherty, G. E. Lloyd, M. E. H. Wale, N. Leonard, J. B. J. L. Dalby, J. H. Potter, W. A. Stuart, A. R. Munroe, R. O. Whyte, J. A. Proudfoot, C. A. Everest, J. O. Baker, A. C. Johnston (on account of ill-health), W. P. Taylor, and W. A. Twigg.

To be temporary Lieutenants: Lieut. S. G. Kean, C.A.M.C., D. E. Scott, C. M. Keillor, T. E. R. Branch, R. W. S. Christmas, G. L. Crimp, W. J. H. Hepworth, F. H. Wolfe, J. Longworth, R. S. Kennedy, J. C. Nixon, J. F. Elliott, R. W. S. Walker, J. L. Gregory, Temp. Hon. Lieut. W. Farquharson, Temp. Hon. Lieut. A. R. Fuller, L. H. Taylor, P. C. E. d'Erf Wheeler, J. W. Turner, W. Arnott, J. F. Carroll, A. C. B. Biggs, F. Rogerson, F. W. Waterworth, A. L. Home, G. Fleming, F. W. M. Palmer, Lieut. W. S. Wallace, C.A.M.C., Lieut. R. H. Thomas, C.A.M.C., Lieut. G. H. Ensing, C.A.M.C., C. H. L. Rixon, J. G. Fraser, L. Bathurst, E. A. W. English C. Murphy, J. McC. Gibson, A. Binning, A. T. Cooper, A. I. Miller, E. G. D. Menzies, J. Robertson, R. Edwards, G. J. Meldon, F. S. Poole, J. J. Harty, G. H. Randolph, E. H. Drake, P. C. C. Smith, W. S. Darby, C. E. A. Wilson, R. J. B. Leney, A. B. Rendel, A. Reid, C. W. Emlyn, A. Boothroyd, C. A. Birts, R. J. Harley-Mason, J. B. Cook, H. H. Weir, W. C. Sharpe, A. J. Kearney, J. R. Thompson, T. W. Pattinson, W. Lessey, H. Blyth, J. B. Wall, Lieut. B. O. Kinney, C.A.M.C., Lieut. G. L. Gall, C.A.M.C., Lieut. C. M. Anderson, C.A.M.C., Lieut. F. G. Pedley, C.A.M.C., Lieut. W. C. Brown, C.A.M.C., Lieut. M. A. Harrington, C.A.M.C., Lieut. J. W. MacKie, C.A.M.C., Lieut. F. J. Colling, C.A.M.C., R. B. Martin, A. J. McNair, A. B. Lindsay, B. B. Sapwell, jun., W. E. Glover, K. W. D. MacRae, H. T. Evans, W. Brennan, W. W. Dempster, G. Saporiti, J. Leach, Temp. Hon. Lieut. R. Curle, J. Robertson, W. H. Whitehouse, C. E. O'Keffe, J. C. Murray, and E. A. C. Beard.

J. McMurray to be temporary Lieutenant whilst employed with the Cape Labour Corps.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Major J. H. P. Graham to be temporary Lieutenant-Colonel whilst in command of a General Hospital.

Captains to be Temporary Majors whilst in command of Field Ambulances: W. Darling, J. Adams, K. D. Murchison, D. C. Barron, M. R. Taylor, and M. W. Paterson.

Captains (Temporary Majors) relinquish their temporary rank on re-posting: W. Darling and M. W. Paterson.

Lieutenants to be Captains: K. P. Brown, H. D. Wright, W. H. Ferguson, J. A. Crawford, and G. Morris.

Lieutenant on probation C. A. W. Ramsay is confirmed in his rank.

To be Lieutenants: D. R. Hennessy, S. J. V. Furlong, J. Y. Maclean, D. Roger, M. McGillivray (from St. Andrews University Contingent Officers Training Corps), T. D. Renwick, and L. P. Johns (from University of London Officers Training Corps).

TERRITORIAL FORCE.

Highland Field Ambulances: Lieutenants seconded for duty with a Stationary Hospital: B. L. Davis and A. G.

Reid. Officers seconded for duty with a Stationary Hospital: Major (temporary Lieutenant-Colonel) A. E. Kidd, Captain A. B. Jamieson, Captain G. McConnell, Captain A. R. Moodie, Captain C. G. Skinner, and Lieutenant J. Steele.

Wessex Field Ambulance: Captain W. A. Valentine is seconded for duty with a Stationary Hospital.

London General Hospital: Captain P. H. Mitchiner is seconded for duty with a Stationary Hospital.

Wessex Casualty Clearing Station: Officers seconded for duty with a Stationary Hospital: Captain (temporary Major) A. C. Alport, Captain J. Fenton, Captain C. A. Raison, and Lieutenant A. C. Smith.

Welsh Border Mounted Brigade Field Ambulance: Lieutenant J. Derham-Reid to be Captain.

Northumbrian Field Ambulance: H. Evers to be Lieutenant.

London Sanitary Company: To be Captains: Lieutenant J. A. Andrews and Lieutenant A. E. Jury.

Attached to Units other than Medical Units.—R. Elliot Pitts to be Lieutenant.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census 7144 births and 4161 deaths were registered during the week ended Saturday, Oct. 7th. The annual rate of mortality in these towns, which had steadily increased from 10·5 to 13·5 per 1000 in the seven preceding weeks, fell in the week under notice to 12·5 per 1000 of their aggregate civil population, estimated at 17,312,295 persons for the year 1915. During the 13 weeks of last quarter the mean annual death-rate averaged 11·4, against 11·1 per 1000 in London. Among the several towns the death-rate during the week ranged from 5·4 in Gloucester, 6·2 in Barnsley, 6·6 in Bath, 6·9 in Barrow-in-Furness, and 7·0 in Ipswich, to 17·2 in Wakefield, 17·5 in West Bromwich and in Liverpool, 18·6 in Rotherham, 18·8 in Carlisle, and 19·7 in Tynemouth.

The 4161 deaths from all causes were 319 fewer than the number in the previous week, and included 412 which were referred to the principal epidemic diseases, against numbers declining from 594 to 488 in the three preceding weeks. Of these 412 deaths, 294 resulted from infantile diarrhœal diseases, 52 from diphtheria, 25 from measles, 15 from whooping-cough, and 13 each from enteric fever and scarlet fever, but not one from small-pox. The annual death-rate from these diseases was equal to 1·2, against 1·5 per 1000 in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 477, 448, and 384 in the three preceding weeks, further fell to 294, and included 62 in London, 34 in Liverpool, 16 in Birmingham, 12 each in West Ham and Sheffield, and 10 each in Hull and Manchester. The deaths attributed to diphtheria, which had been 35, 39, and 40 in the three preceding weeks, further rose to 52, of which 12 occurred in London, 6 in Liverpool, and 3 each in West Ham and Sheffield. The fatal cases of measles, which had been 29, 21, and 23 in the three preceding weeks, rose to 25, and included 10 in London, 4 in West Ham, and 3 in Sheffield. The deaths attributed to whooping-cough, which had been 33, 28, and 20 in the three preceding weeks, further fell to 15, of which 3 were registered in Manchester and 2 in London. The deaths referred to enteric fever, which had been 9, 4, and 11 in the three preceding weeks, rose to 13, and included 3 in London. The fatal cases of scarlet fever, which had been 11, 8, and 10 in the three preceding weeks, rose to 13, of which 3 occurred in London and 2 in Plymouth.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 980, 1012, and 1020 at the end of the three preceding weeks, further rose to 1037 on Saturday, Oct. 7th; 159 new cases were admitted during the week, against 130, 158, and 151 in the three preceding weeks. These hospitals also contained on Saturday, Oct. 7th, 1357 cases of diphtheria, 73 of measles, 50 of whooping-cough, and 38 of enteric fever, but not one of small-pox. The 988 deaths from all causes in London were 127 below the number in the previous week, and corresponded to an annual death-rate of 12·0 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 66 to 130 in the five preceding weeks, further rose to 136 in the week under notice.

Of the 4161 deaths from all causes in the 96 towns, 148 resulted from different forms of violence, 309 were the subject of coroners' inquests, and 1241 occurred in public institutions. The causes of 42, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Nottingham, Leicester, and in 67 other smaller towns. Of the 42 uncertified causes, 7 were registered in Birmingham, 5 in Liverpool, 4 in London, 3 in Manchester, and 2 each in Bootle, Blackburn, Rotherham, and Gateshead.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census 7826 births and 4071 deaths were registered during the week ended Saturday, Oct. 14th. The annual rate of mortality in these towns, which had been 12·8, 13·5, and 12·5 per 1000 in the three preceding weeks, further fell in the week under notice to 12·3 per 1000 of their aggregate civil population. Among the several towns the death-rate ranged from 4·3 in Oxford, 4·4 in Eastbourne, 6·5 in Newport (Mon.), 6·8 in Enfield, and 6·9 in Edmonton, to 17·3 in Gloucester, 18·7 in Middlesbrough, 19·6 in Rochdale, 20·7 in Barnsley, and 21·8 in Bootle.

The 4071 deaths from all causes were 90 fewer than the number in the previous week, and included 367 which were referred to the principal epidemic diseases, against numbers declining from 594 to 412 in the four preceding weeks. Of these 367 deaths, 259 resulted from infantile diarrhœal diseases, 45 from diphtheria, 23 from whooping-cough, 21 from measles, 10 from enteric fever, and 9 from scarlet fever, but not one from small-pox. The death-rate from these diseases was equal to 1·1, or 0·1 per 1000 less than that recorded in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 477 to 294 in the four preceding weeks, further fell to 259, and included 72 in London, 24 in Liverpool, 12 in Sheffield, 11 in Birmingham, and 7 in Bristol. The deaths attributed to diphtheria, which had increased from 35 to 52 in the four preceding weeks, fell to 45, of which 9 were registered in London, 4 in Birmingham, and 3 each in Liverpool and Carlisle. The fatal cases of whooping-cough, which had been 28, 20, and 15 in the three preceding weeks, rose to 23, and included 4 in Great Yarmouth and 3 each in Bootle and Manchester. The deaths referred to measles, which had been 21, 23, and 25 in the three preceding weeks, fell to 21; 6 deaths occurred in London, 3 in West Ham, and 2 each in Wolverhampton, Birmingham, and Manchester. The deaths attributed to enteric fever, which had been 4, 11, and 13 in the three preceding weeks, fell to 10, and included 4 in London and 2 in Manchester. The fatal cases of scarlet fever, which had been 8, 10, and 13 in the three preceding weeks, fell to 9, of which 3 occurred in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had increased from 980 to 1037 in the four preceding weeks, further rose to 1074 on Saturday last; 167 new cases were admitted during the week, against 158, 151, and 159 in the three preceding weeks. The cases of diphtheria, which had been 1292, 1294, and 1357 at the end of the three preceding weeks, further rose to 1410; 194 new cases were admitted during the week, against 186, 193, and 228 in the three preceding weeks. These hospitals also contained on Saturday last 70 cases of measles, 47 of whooping-cough, and 43 of enteric fever, but not one of small-pox. The 966 deaths from all causes in London were 22 below the number in the previous week, and corresponded to an annual rate of 11·7 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 66 to 136 in the six preceding weeks, fell to 132 in the week under notice.

Of the 4071 deaths from all causes in the 96 towns, 187 resulted from violence, 342 were the subject of coroners' inquests, and 1239 occurred in public institutions. The causes of 46, or 1·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 70 other smaller towns. Of the 46 uncertified causes, 11 were registered in Liverpool, 9 in Birmingham, 4 in Gateshead, and 2 each in Leicester, Manchester, Hull, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year 1035 births and 685 deaths were registered during the week ended Saturday, Oct. 7th. The annual rate of mortality in these towns, which had been 13·0, 14·5, and 13·6 per 1000 in the three preceding weeks, rose to 15·1 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 12·6, against a corresponding rate of 11·4 per 1000 in the large English towns. Among the several towns the death-rate in the week under notice ranged from 6·7 in Hamilton, 7·8 in Ayr, and 10·2 in Leith and in Kirkcaldy, to 17·7 in Aberdeen, 18·8 in Greenock, and 21·0 in Kilmarnock.

The 685 deaths from all causes were 67 in excess of the number in the previous week, and included 92 which were referred to the principal epidemic diseases, against 104 and 75 in the two preceding weeks. Of these 92 deaths, 66

resulted from infantile diarrhœal diseases, 8 from measles, 7 from scarlet fever, 5 from diphtheria, 4 from whooping-cough, and 2 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 2·0, against 1·2 per 1000 in the large English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 50, 83, and 50 in the three preceding weeks, rose to 66, and included 44 in Glasgow, 5 each in Dundee and Paisley, 4 in Aberdeen, and 3 in Edinburgh. The deaths attributed to measles, which had been 4, 4, and 5 in the three preceding weeks, rose to 8, and comprised 3 in Glasgow, 2 each in Edinburgh and Dundee, and 1 in Leith. The fatal cases of scarlet fever, which had been 3, 3, and 6 in the three preceding weeks, numbered 7, and included 2 each in Glasgow, Edinburgh, and Paisley, and 1 in Kilmarnock. The deaths referred to diphtheria, which had been 6, 5, and 9 in the three preceding weeks, fell to 5, and were all registered in Glasgow. The 4 deaths from whooping-cough were slightly below the weekly average of last quarter, and included 2 in Glasgow. The fatal cases of enteric fever were recorded in Glasgow and Edinburgh.

The deaths referred to diseases of the respiratory system, which had increased from 45 to 72 in the four preceding weeks, further rose to 94 in the week under notice, but were 22 below the number registered in the corresponding week of last year. The deaths from violence numbered 36, against 41 and 25 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the registration area of Dublin 204 births and 142 deaths were registered during the week ended Saturday, Oct. 7th. The annual rate of mortality, which had been 17·3, 15·6, and 18·3 per 1000 in the three preceding weeks, rose to 18·7 in the week under notice, against 12·0 and 15·7 per 1000 in London and Glasgow respectively.

The 142 deaths from all causes included 35 of infants under 1 year and 33 of persons aged 65 years and upwards. Fourteen deaths (of infants under 2 years) were referred to diarrhœal diseases, and 3 each to enteric fever, whooping-cough, and diphtheria. The causes of 3 deaths were the subject of coroners' inquests, and those of 3 others were uncertified, while 50, or 35 per cent., of the total deaths occurred in public institutions.

During the same period 153 births and 105 deaths were registered in the city of Belfast. The deaths corresponded to an annual rate of 14·0, or 0·6 per 1000 higher than that in the previous week, and included 19 of infants under 1 year and 20 of persons aged 65 years and upwards. Two deaths (of infants under 2 years) were referred to diarrhœal diseases and 1 each to enteric fever and measles. The causes of 4 deaths were the subject of coroners' inquests, and 26 of the total deaths occurred in public institutions.

Obituary.

W. A. MEREDITH, M.B., C.M. EDIN., F.R.C.S. ENG.,

CONSULTING SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN.

Mr. William Appleton Meredith, whose death we briefly recorded last week, was born in New York in 1848. He was brought up at Boulogne, and thus acquired a thorough knowledge of the French language. His medical education began and ended at University College Hospital, where he held the posts of house surgeon to Sir John Erichsen and resident medical officer. But there was an interval during which he went to Edinburgh in order to obtain a medical degree. There he saw much of Lister's practice and made the acquaintance of Knowsley Thornton. Soon afterwards, at Lister's suggestion, Thornton came to London to assist Sir Spencer Wells in his enormous private practice, then by far the largest in London; and when, after some years, Thornton left Spencer Wells, Meredith took his place. Before this his knowledge of French had stood him in good stead whilst acting as the medical attendant to the well-known Belgian Minister, Baron Van der Weyer, in which capacity he formed a large social acquaintance. In the course of time Thornton became the most prominent London ovariotomist, and Meredith, when the arrangement with Spencer Wells came to an end, worked with Thornton for some years.

Thornton's early retirement left the field open, and Meredith, who had profited by the great experience of Spencer Wells and Thornton and was thoroughly versed in Lister's antiseptic methods, was not slow to grasp the opportunity offered. He was already known as an extremely careful though rather slow operator, who, devoted the most meticulous attention to every detail of treatment. Successful ovariotomists were few and far between. He therefore soon acquired a large and lucrative practice, and, as he was surgeon to the Samaritan Hospital, he had opportunities of showing in public that he belonged to the camp of antiseptic ovariotomists, who at that time were in constant conflict with those who decried Lister's methods. But he did not add much to the literature of the subject.

In the meantime, Mr. and Mrs. Meredith had developed an interest in many things outside the medical profession. Their house in London became filled with a well-selected collection of rare old furniture and plate, and their holidays were spent at a country house in Hertfordshire. It was no surprise to Meredith's friends when they heard that he, before most men think of retiring, was about to give up London and make his home in Norfolk, where, ever since, he spent his time in country pursuits.

Meredith was not a breaker of new ground like Spencer Wells and Thornton; but he was an extremely successful surgeon. He was a rigid follower of Lister's methods, and did not hesitate to employ antiseptics in the course of operations on the peritoneal cavity.

JAMES BERESFORD RYLEY, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. EDIN.

Dr. James Beresford Ryley, whose death occurred at his bungalow residence at Shoreham-by-Sea on Oct. 13th, had resided at Shoreham about six years, making periodical journeys to London in pursuance of professional duties. At Shoreham he was a well-known figure owing to his active participation in local affairs, and the news of his rather sudden end came as a surprise to many friends and patients. Born in India 77 years ago, he was a son of Major Beresford Ryley, of the Bengal Artillery. He came to this country at an early age and was educated in Ireland. Taking medicine as his profession, he studied at the Royal College of Surgeons in Ireland and the University of Edinburgh. He took the L.S.A. diploma in 1864, became M.R.C.S. Eng. in 1866, L.R.C.P. Edin. in 1868, proceeding to the M.D. degree in Brussels in 1879. He was for a time president of the Brussels Medical Graduates' Association. One of his earliest appointments was as a surgeon on H.M.S. *Warspite*, and, settling down in London, he held a large number of appointments. He made several contributions to THE LANCET.

EMILE LAGRANGE, M.D. LOUVAIN.

Dr. Emile Lagrange, the well-known Ypres physician, died at Leeds, where, as a refugee, he has been since the beginning of the war the honoured guest of the St. Chad's Belgian Refugees' Committee. Descended from an old Flemish family, he was born at Ypres in 1824, and after taking his degree at the University of Louvain he entered upon practice in his native city and for 50 years was attached to the hospital there. For his services to the State on the occasion of an outbreak of cholera he received the decoration of the Croix Civique and later that of the Order of Leopold. Dr. Lagrange, whose faculties remained active till the day of his death, had watched the development of modern Belgium with the anxiety of a true patriot, and it is pathetic that his death should have occurred in a foreign, albeit friendly, country at a time when his own country is passing through her hour of trial. His recollections included the signing of the treaty of 1839 (the famous "scrap of paper") and the visit of Queen Victoria with the Prince Consort to her uncle Leopold I. in Belgium.

DEATH OF MR. CHAUNCY PUZEY, F.R.C.S.—Mr. Chauncy Puzey, consulting surgeon to the David Lewis Northern Hospital, and one of the best-known surgeons in Liverpool, died at his residence, Princes-avenue, West Kirby, on Oct. 10th. Receiving his medical education at Guy's Hospital, London, he obtained the M.R.C.S. Eng. in 1863 and the L.R.C.P. Lond. in the following year. He was elected a Fellow of the Royal College of Surgeons of England in 1894. For many years he was senior surgeon at the David Lewis Northern Hospital (of which he subsequently became consulting surgeon), an honorary surgeon to the Liverpool Royal Infirmary Lock Hospital, and assistant surgeon at the Liverpool Eye and Ear Infirmary. He was an ex-President of the Liverpool Medical Institution.

Correspondence.

"Audi alteram partem."

SPINAL ANÆSTHESIA AND THE ACUTE ABDOMEN.

To the Editor of THE LANCET.

SIR,—May I endorse the plea for spinal stovaine as the anæsthetic of choice in most acute abdominal operations made by Mr. Percival Cole in your issue of Oct. 7th? It is a great gain for the surgeon to have a completely flaccid abdominal wall and quiet thoracic respiration, when the patient's life may depend on delicacy of technique and freedom of access to all parts of the peritoneal cavity. It is a gain, too, to have little or no post-operative vomiting and to be able to give fluids by the mouth from the time of operation. The cutting off of all afferent stimuli during operation prevents any nerve shock, and it is a far more effective way of realising Crile's ideal of "anoci-association" than is the infiltration method used by Crile himself. But, above all, the method is indicated because of the reduced tendency to post-operative intestinal paralysis.

In a paper read before the Manchester Medical Society on Nov. 5th, 1913 (and published in the *Medical Chronicle*, January, 1914) I drew attention to the fact that under spinal anæsthesia in cases of general suppurative peritonitis the small intestine may be seen at operation in active peristalsis, and the bowels often act on the table, owing to the abolition of the inhibitory reflex through the splanchnic nerves, which arise from the sixth dorsal to first lumbar spinal segments. I urged the superiority of this method to general anæsthesia, in which the splanchnic inhibitory reflex remains active and all the traumatic stimuli of the operation add their paralysing influence to that of the peritonitis. My subsequent experience of acute abdominal work has fully borne out this contention, and I am convinced that in many grave abdominal emergencies spinal as against general anæsthesia is a life-saving procedure.

There are, I believe, two stages in the intestinal paralysis of acute peritonitis. The first is the splanchnic reflex inhibition of movement, which is, surgery apart, a protective mechanism and Nature's prophylactic against diffuse infection. The second and terminal stage is a direct poisoning of the neuro-muscular tissues of the bowel wall. When this latter stage is fully developed recovery is hopeless. In this condition the bowel when exposed under spinal anæsthesia lies motionless, in contrast to its active writhing movements when seen in the earlier stage, and I believe that a fairly accurate idea of the post-operative prognosis can be founded on these facts.

In technique I differ somewhat from Mr. Cole. I have not seen any sufficient reason to give up Barker's heavy solution, which I find both rapid and constant in action, and readily controlled in its extent. I do not now often fail to procure anæsthesia up to the costal margin when required, and I have frequently used the method in perforated gastric or duodenal ulcer or operations on the gall-bladder without trouble. Provided that the neck is flexed to protect the phrenic nerves, the legs can from the first be raised higher than the trunk and after 15 minutes the Trendelenburg position can safely be used.

Mr. Cole's method of blindfolding seems to me likely to increase the fears of a nervous patient. I rely on the preliminary dose of morphia and a screen across the patient's chest shutting off the operation, and if the patient is inclined to be nervous a little ether inhaled occasionally keeps him in a drowsy condition, short of the stage of excitement, and has the additional advantage of stimulating the heart and respiration. I always inject eucaine or novocaine intradermically at the site of puncture with a fine hypodermic needle before inserting the spinal needle, and I make the injection myself, while the anæsthetist regulates the level of the patient and decides whether or not to give a little ether.

The technique of spinal anæsthesia is certainly difficult to acquire, but the method becomes far easier and more reliable with experience and will, I believe, ultimately win much wider favour than it at present enjoys.

I am, Sir, yours faithfully,

Manchester, Oct. 9th, 1916. JOHN MORLEY.

THE PREPARATION OF STABLE COLLOIDAL ANTIMONY.

To the Editor of THE LANCET.

SIR,—The use of colloidal metals in the treatment of bacterial diseases is getting more and more extensive and has given rise to many brilliant results. The remarkable trypanocidal properties possessed by antimony, its specific action against the Leishmania, and the fact that in the colloids generally the ratio dosis curativa: dosis tolerata is very low, make it desirable to prepare a stable solution of colloidal antimony. The Svedberg Company has obtained the isobutyl-alk-sol of colloidal antimony by a method similar to that of preparing colloidal arsenic. The Svedberg's colloidal antimony is brownish-red by transmitted light and black by reflected light.[1]

There is mention made of the preparation of this drug in the *Chemist and Druggist* (vol. i., 1913), but so far as I am aware, none of the big manufacturing chemists in England are able to supply it. The reference in the *Chemist and Druggist* is probably to some colloidal compounds of antimony which have been prepared. Experiments conducted by Martindale on the chemical production of colloidal antimony have been unsuccessful.[2] The Svedberg's colloidal antimony was very unstable and was precipitated within a short time after its production, and must therefore be more or less useless for therapeutic purposes on a practical scale.

Our first experiments were performed with ethyl alcohol. It was found that no colloidal solution of the metal could be obtained by passing sparks from an induction coil through coarse metallic antimony under ethyl alcohol. The method of passing a feeble current through this medium was tried but without success. The most successful medium was found to be chloroform, from which the colloid is obtained in fair concentration and from which solid colloidal antimony can be secured by evaporating the medium.

The details of the preparation are as follows. The apparatus consists of a fair-sized induction coil worked by an 8-volt accumulator. The electrodes, made of aluminium foil, are dipped in chloroform, into which are added coarse particles of metallic antimony freed from dust of antimony by sifting. On passing sparks through this medium some of the antimony passes into a powdery state and some goes into solution. On distilling off the solvent we obtain a tar-like substance, having a peculiar smell. The substance can be dried in a desiccator or in air and even heated gently over the Bunsen burner, but apparently does not undergo much change, as it is freely soluble in chloroform after such treatment.

The colloidal solution of antimony is brownish-red by transmitted light and black by reflected light, being in this respect similar to the Svedberg's colloid. It presents the Tyndall phenomenon. The colloid obtained in this way seems to be a very stable substance, and in this respect differs from the Svedberg's colloid. The therapeutic use of the colloidal metallic antimony has already been described in the *Indian Medical Gazette* (May, 1916). Further observations on the use of this drug in the same disease have shown similar beneficial results.

I am, Sir, yours faithfully,

UPENDRA NATH BRAHMACHARI, M.A., M.D., Ph.D.,
Rai Bahadur; Teacher of Medicine at the Campbell
August 18th, 1916. Medical School, Calcutta.

THE DIAGNOSIS OF TUBERCULOSIS BY TUBERCULIN.

To the Editor of THE LANCET.

SIR,—I venture a criticism on a point of technique raised in Dr. H. A. Ellis's excellent article on diagnosis by tuberculin in your issue of Oct. 7th. If the successive dilutions are made within the syringe the amount contained in the nozzle after the plunger has been brought to the tenth mark as directed by Dr. Ellis is too great to be disregarded. It is doubtless variable with the pattern of syringe used, but I have found it several times to be about one-third of a division. In such case the dilutions prepared according to Dr. Ellis's method, nominally 1 in 10, 1 in 100, 1 in 500, would be actually 1 in 7·5, 1 in 56, 1 in 211.

[1] Ber. 38, 3615-3620, 1905, and Meggs' "Inorganic Chemistry."
[2] Extra Pharmacopœia, 1915, sixteenth edition.

I am inclined to doubt the wisdom of trusting to an air-bubble for the thorough mixing of the contents of a long, narrow syringe. In such bubbles move very slowly and grudgingly. Why not pass a teaspoon through the flame of a spirit lamp and discharge and refill the syringe into and from it several times? I am, Sir, yours faithfully,

Coventry, Oct. 16th, 1916. A. F. BILL.

THE AGGLUTINATION OF MENINGOCOCCI IN RELATION TO CURATIVE SERUMS.

To the Editor of THE LANCET.

SIR,—The treatment of epidemic cerebro-spinal meningitis by intrathecal injections of immune serum has given somewhat uncertain results during the past two years in Great Britain. On this account the findings of an investigation into the agglutinative properties of divers serums, despite the fact that these serums were only tested against two strains of meningococci, may be of interest to those concerned with the treatment of this disease.

Since the microscopic test in the case of non-motile organisms allows at least the possibility of leaving something to imagination, I made use of Dreyer's macroscopic method of testing for agglutination. In this method positive reactions are marked by a definite flocculent deposit and by a clearing up of the supernatant fluid. As a control the homologous serum for each strain of meningococci was used. In addition to this a normal serum and also the serum of a man who had recovered from the disease 12 months previously were employed.

From the spinal fluid of two patients, Q. and W., under the care of Deputy Surgeon-General Robert Hill, C.V.O., at the Royal Marine Infirmary, Deal, pure cultures of a Gram-negative diplococcus, growing at 37° C., but not at 22° C., and fermenting glucose-litmus-peptone-ascitic water, but not saccharose litmus-peptone-ascitic water—the diplococcus meningitidis—were isolated. Incidentally these cultures retained their characteristics through many subcultures. In testing the agglutinating properties of the serums on these two strains of meningococci an emulsion of a 16-hours growth was employed. The serums tested were diluted 1 in 10, 1 in 15, 1 in 25, 1 in 50, 1 in 125, and 1 in 250.

Meningococci from the patients Q. and W. were not agglutinated by normal serum, by serum from a patient who had recovered 12 months ago, by the antimeningococcus serum of the Wellcome Physiological Research Laboratories (A. 1289 D.), or by the following antimeningococcus serums from the Pasteur Institute of Paris—(3636) Gordon strain 1, (3639) Gordon strains 2 and 3, and (3635) monovalent, all prepared in February, 1916—in any of the above dilutions.

The meningococci from the patient Q. were not agglutinated by serum from the patient W. in any of the above dilutions. They were agglutinated by their homologous serum from patient Q. and also by the polyvalent serum of the Pasteur Institute (January, 1916) in dilutions of 1 in 10, 1 in 15, and 1 in 25. Lastly, this strain of meningococci was agglutinated by the antimeningitis serum of the Rockefeller Institute, New York (17/11/15) in dilutions from 1 in 10 to 1 in 125.

Meningococci from the patient W. were not agglutinated by serum from the patient Q. or by the polyvalent serum of the Pasteur Institute in any of the foregoing dilutions. They were agglutinated by their own homologous serum from the patient W. in dilutions from 1 in 10, 1 in 15, and 1 in 25, and they were agglutinated by the serum of the Rockefeller Institute in dilutions from 1 in 10 to 1 in 250.

This investigation was repeated on three occasions, and the results remained constant. The value of the serum prepared at the Rockefeller Institute, New York, as judged by the agglutination of these two strains of meningococci, is very apparent, and it may be suggested that *early* lumbar puncture, followed by intrathecal injection of this serum, should lead to results as brilliant as those originally achieved by Flexner.

Of the two cases to which reference has been made, both fulminant in type at the onset, one (W.) has made a complete recovery. This patient had an intrathecal injection of Flexner's serum (40 c.c.) six hours after the onset of the disease. The other patient (Q.) died after three months' illness. He received an early intrathecal injection of one of other serums enumerated, but did not have Flexner's serum (40 c.c.) until the eighth day of his illness.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 10th, 1916. HALLIDAY SUTHERLAND.

"CLERGYMEN'S SORE-THROAT."

To the Editor of THE LANCET.

SIR,—It is now over 30 years since I first asked myself why we speak of chronic pharyngitis and laryngitis produced by over-speaking, as "clergymen's sore-throat" and not as barristers' sore-throat. Why is this condition so rarely seen in barristers who use their voices more than clergymen, and in stuffier atmospheres? On thinking over the matter the only difference I could perceive between a clergyman's and a barrister's speaking was that a clergyman spoke *down* to his congregation, and a barrister spoke *up* to the judge, the former thus pressing on his larynx and causing congestion thereof, whereas the barrister had his larynx and throat in a normal position, or rather in a hypernormal position. From that time I have always advised such cases to speak looking *up* to their audience and never *down*. I have used no local applications or treatment except to rectify a condition such as granular pharyngitis, but where necessary have suggested a rest of voice for two or three months.

In all cases this plan has been successful. I will only quote one case, an American lady with complete loss of her speaking voice; she was a public lecturer and had had to relinquish her calling, no treatment having benefited her. After three months' rest of voice she resumed her occupation, now 12 years ago, and has never since had loss of voice. During this period she had made no alteration in her manner of public speaking, except that she has declined to use any buildings which involved speaking *down* to her audience, and has therefore always spoken looking *up* from the well of a theatre.

I was much interested a few years ago to see Professor Keith's statement that the human voice would never have become developed had we not first attained the upright posture, which, it seems to me, bears out the *raison d'être* of the treatment mentioned above.

I am, Sir, yours faithfully,

Weymouth-street, W., Oct. 17th, 1916. GEO. STEELE-PERKINS.

THE ROYAL ARMY MEDICAL CORPS GAZETTES.

To the Editor of THE LANCET.

SIR,—The Royal Society of Medicine has received from time to time a few odd numbers of these Gazettes, probably sent to us by Fellows at the front, and I would like with your kind permission to invite those responsible for the publication of these Gazettes that they would endeavour to send to us complete sets, which would be bound and carefully preserved in our library. I need scarcely enlarge on the interest that will attach to such a collection in the years to come, and as, under the conditions that prevail at the front, it is not likely that many complete sets will be preserved, they are sure to become exceedingly scarce and probably unobtainable after the war.

I should be very grateful to any who, seeing this letter, will help me in trying to preserve a complete set of all the Gazettes in this library.

I am, Sir, yours faithfully,

J. Y. W. MACALISTER.

Royal Society of Medicine, 1, Wimpole-street, W., Oct. 14th, 1916.

MEDICAL SOCIETY OF LONDON.—An incident of historical interest is the removal of the fine terra-cotta plaque which was presented by the founder of this society, Dr. John Coakley Lettsom, in 1778, from the original meeting house, No. 3, Bolt-court, Fleet-street, and its installation in the present home in Chandos-street, Cavendish-square. The central figure of the plaque represents the Isis of Sais, the fabled revealer of the mysteries of Nature and the presiding genius of medicine. It is flanked on either side by a sphinx, symbolising mystery, while a serpent, emblematic of eternity, bears the inscription, in Greek, "I am whatever is or has been or will be, and no mortal has hitherto drawn aside my veil."

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Killed.

Capt. A. W. Venables, R.A.M.C., was a student at St. Mary's Hospital, London, and qualified in 1913. He was in practice at Cricklewood before joining the R.A.M.C. He received his captaincy in September last.

Died of Wounds.

Lieut. W. S. Lacey, R.A.M.C., was a student at Guy's Hospital, London, and qualified in 1912, having previously received the L.D.S. R.C.S. Eng. in 1908. He was in practice at Hertford before joining the R.A.M.C.

Died.

Col. B. B. Grayfoot, C.B., I.M.S., received his medical education at Edinburgh University and qualified in 1885. He thereupon joined the Indian Medical Service, and was gazetted captain in 1886 and colonel in 1912. He held the appointment of Assistant Director of Medical Services in India, and was appointed C.B. in January of this year.

Wounded.

Capt. H. B. German, R.A.M.C., attached Leicester Regiment.
Capt. W. L. Hutton, Canadian A.M.C.
Lieut. E. E. T. Nuthall, R.A.M.C.
Capt. L. D. Stott, R.A.M.C.
Lieut. R. N. Craig, R.A.M.C., attached Yorkshire Regiment.
Lieut. H. F. Johns, R.A.M.C., attached Leicester Regiment.
Capt. R. J. Rogers, R.A.M.C., attached Middlesex Regiment.
Lieut. F. A. Anderson, R.A.M.C., attached Royal Irish Rifles.
Capt. F. L. P. G. Bennett, R.A.M.C., attached Shropshire Light Infantry.
Lieut. G. J. McGorty, R.A.M.C., attached Highland Light Infantry.
Capt. J. C. Pyper, R.A.M.C.
Lieut. A. J. R. Taylor, R.A.M.C.

MENTIONED IN DESPATCHES.

In a despatch received from Lieutenant-General Sir Percy Lake, Commander of the Forces in Mesopotamia, and describing the final operations for the relief of Kut-el-Amara, the following reference to the medical staff appears:—

> The energy and devotion to duty shown by the personnel of the medical services deserve commendation. Overworked and undermanned as they were during the advance in January—for the greater portion of the medical organisations then in the country had been shut up in Kut, and the medical units of the 3rd and 7th Divisions had only begun to arrive—they did their utmost with the means at their disposal to alleviate the sufferings of the sick and wounded. With the arrival in February of the first river hospital ship, *Sikkim*, and a steady increase in personnel, their power of dealing with the situation was considerably improved, as the action on March 8th showed. No report on the medical services would be complete without reference to the splendid services rendered by Mr. T. A. Chalmers, of Assam, who brought out, and himself drove, his specially designed motor-boat *Ariel*. He spent his whole time, frequently under fire, in conveying sick and wounded between collecting stations, field ambulances, and river hospital craft in a manner which no other boat in our possession could have imitated.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Trooper G. L. Hardwick, Canadian Cavalry, third son of Dr. F. S. Hardwick, of Charing, Kent.
Lieut. R. Davison, Liverpool Regiment, only son of Dr. J. R. Davison, of Belfast.
Second Lieut. N. de Havilland Hall, Suffolk Regiment, younger son of Dr. de Havilland Hall, of Wimpole-street, W.
Second Lieut. L. H. Spreat, Royal Horse Artillery, younger son of Mr. F. A. Spreat, F.R.C.S., of Whetstone.
Second Lieut. H. P. Dudley, 3rd Leinsters, attached Royal Irish Regiment, third son of the late Dr. H. M. Dudley, of Queen's County, Ireland.
Lieut. H. St. B. Sydenham, Devonshire Regiment, only son of Dr. G. F. Sydenham, of Dulverton, Somerset.
Second Lieut. H. C. Crichton, Manchester Regiment, youngest son of Dr. G. Crichton, of South Kensington.
Second Lieut. A. C. MacCormick, Argyll and Sutherland Highlanders, elder son of Sir A. MacCormick, M.D., of Sydney, Australia.
Capt. N. A. Browning-Paterson, Royal Flying Corps, younger son of Dr. A. Browning-Paterson, of Shepherd's Bush.
Second Lieut. L. C. Kidd, Royal Flying Corps, second son of Dr. H. C. Kidd, of Bromsgrove, Worcestershire.

OBITUARY OF THE WAR.

ARTHUR NIMMO WALKER, B.A., M.D., B.C. CANTAB.,

LIEUTENANT-COLONEL, ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel A. N. Walker, who was killed at the front on Sept. 24th, was second son of the late Dr. George Edward Walker, founder of St. Paul's Eye Hospital, Liverpool. He was educated at Liverpool College and Queens' College, Cambridge, and after qualifying in 1898 was house physician to the Liverpool Royal Infirmary and assistant lecturer on anatomy at the University before he began to devote himself exclusively to ophthalmic surgery, in which his father had been distinguished before him. Besides his surgeoncy at St. Paul's Hospital, he was ophthalmic surgeon to the David Lewis Northern Hospital and to the School for the Indigent Blind, as well as one of two ophthalmic surgeons under the Liverpool Education Committee in connexion with the scheme for the treatment of school children. Dr. Walker made numerous contributions to the literature of his subject, among the most important being the record of a novel and successful experiment in the control of ophthalmia neonatorum, published in our columns in 1908. Dr. Walker served in the South African War, and later, on joining the Territorial Army, was appointed to the command of a battery of West Lancashire Artillery. On the outbreak of war he transferred to the Royal Army Medical Corps and went to France in August, 1915.

Mr. Frank Jeans writes:—"To those few who, like myself, knew Arthur Nimmo Walker more than intimately his loss is irreparable, and I doubt whether his large circle of friends ever assessed his worth at its true value. He had all the qualities which command affection and respect—I mean a sense of duty, loyalty, and chivalry. Furthermore, his sense of humour, which was particularly charming, prevented the serious qualities from making him dull. These characteristics, though not the kind that necessarily make for a meteoric success, were bound to have made him, by his expert knowledge and skill in his special work, a leader of his profession. It was characteristic of him that the subject he gave his heart to was ophthalmia neonatorum, a disease never seen in wealthy patients, and his work in this direction will in the future be regarded as one of the landmarks of preventive ophthalmic surgery. Arthur Walker was one of the few men of our own generation whom we felt could be consulted about general matters with the absolute certainty of getting advice which was wise and ethically sound, and above all disinterested. He was always thinking of someone else—now his patients, now his colleagues, now his family. Rarely did it occur to him that there was such an individual as Arthur Walker to be considered."

ARTHUR ANDERSON MARTIN, M.D., F.R.C.S. EDIN.,

MAJOR, NEW ZEALAND MEDICAL CORPS.

Major A. A. Martin, who died on Sept. 17th of wounds received on active service, at the age of 40 years, was born in Otago, New Zealand. After a brilliant career as a scholar and prizeman, he graduated with honours at Edinburgh University in 1900, and was then house surgeon at the Hospital for Sick Children, Great Ormond-street, and senior house surgeon at the Sheffield Royal Hospital. He served as a civil surgeon in the South African Field Force, 1901–02. At the beginning of the present war he joined the Royal Army Medical Corps, and went through the battles of the Marne and Aisne, being mentioned in despatches for gallant conduct in the field. He was then for a time surgical specialist to No. 6 General Hospital, Rouen. In February,

1916, he joined the New Zealand Medical Corps, and during the seven months until his death served his corps with great personal devotion.

Major Martin will be remembered at Palmerston, New Zealand, as a practitioner who was a generous and helpful friend to a wide circle of patients. He contributed a number of surgical notes to medical journals, and as the author of "A Surgeon in Khaki" was widely known as a frank critic of men and affairs.

THOMAS CAMERON HOUSTON, M.B., CH.B. GLASG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain T. C. Houston, who was killed on active service on August 25th, was a native of Muirkirk, where he received his early education, and later at Kilmarnock Academy. His medical course was taken at Glasgow University, where he graduated M.B., Ch.B. in the summer of 1915, at once offering himself for service in the Royal Army Medical Corps. He was attached to the Yeomanry at Selkirk, where he was a favourite with the men, sharing in all their sports. In July of this year his request for a place at the front was granted, and in the following month he was killed by a shell along with two officers who were standing with him.

A medical friend who knew Captain Houston intimately writes of him as a delightful companion, a keen student, full of eagerness and enthusiasm for his work. "He was intensely interested in all laboratory work. I feel sure that if he had been spared he would have done something special in research."

THOMAS STRAIN, M.D. GLASG., D.P.H. CANTAB.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain T. Strain, who died on active service on Sept. 16th at the age of 31, was the youngest son of William Strain, of Buarbrae, Wishaw, Scotland. From Hutchison's Grammar School, Glasgow, he entered Glasgow University, graduating M.B., Ch.B. on his twenty-first birthday. He then spent a year visiting Cape Colony, Natal, Transvaal, and Orange River Colony. On his return he devoted himself to public health work, taking the D.P.H. of Cambridge in 1908. He also graduated M.D. Glasg. in 1910. Of public health appointments he was in succession the resident medical officer at Enfield and Edmonton Isolation Hospital, assistant medical officer of health for Ayrshire, medical officer of health for Barnes and Mortlake, and just before joining the Army he was medical officer of health for Heston and Isleworth. While at the front he was twice mentioned in despatches.

One of his colleagues writes of Captain Strain: "I knew him as the first resident medical officer to this hospital, and I soon found out his sterling qualities. Method was his mainspring, and he quickly reduced his work to manageable dimensions, although immediately after taking up the duties we had to deal with a very large outbreak of diphtheria. His mental equipment was of a high order and with his genial ways and kindness of heart he would have gone far in the particular branch of the profession which he had chosen." Captain Strain leaves a widow and two children.

GEORGE HUNTLY WOOD, M.B., B.S. DURH.,

CAPTAIN, NEW ZEALAND MEDICAL CORPS.

Captain G. H. Wood, who died at Suez on August 11th from wounds received in the recent fighting, was son of the late George Wood, a well-known shipmaster of North Shields. Educated privately, he entered the merchant service, securing an extra-master mariner's certificate when he was 23. He was then for a time chief officer with the White Star Line. At the age of 30 Huntly Wood became interested in surgery and determined to qualify as a medical man. He was a student at the Newcastle-on-Tyne Medical School and on qualifying in 1909 held several resident appointments at the Royal Victoria Infirmary before emigrating to New Zealand, where he built up a considerable practice at St. Andrews, South Canterbury. When war broke out he offered his services to the New Zealand Expeditionary Force and remained with it until the time of his death.

THE DIET OF THE MUNITION WORKER.

The soldier and the sailor expect to have their food provided for them on a dietary arranged for their particular needs, and now that the average high price of food[1] has rendered a nourishing and economical diet for the civilian population a matter of primary importance, the munition worker is also beginning to be dieted according to his or her special requirement. In many places canteen meals are provided where the workers come from afar; in others where accommodation was completely lacking special hostels have been erected. Dr. Leonard Hill, on behalf of the Health of Munition Workers Committee, has recently made an investigation into the cost and the nutritive value of the food supplied, and the information obtained is embodied in a report which has just been published as the second Appendix to Memorandum 3 (Industrial Canteens). He lays down the principle that the amount of food taken should be regulated solely by the loss of energy it is required to replace, and adds that fortunately the chief foodstuffs really provide all the nourishment that is requisite and consistent with health, probably better than the more highly flavoured and expensive foods which artificially stimulate the appetite. Of these cheaper foods Dr. Hill gives a list as follows: Bread, margarine, porridge, milk, herrings, cheese, beans, cabbages, oranges, and the cheaper kinds of meats. He estimates that the energy required by a man engaged in fairly light munition work is about 3500 calories of the food as purchased. The composition of canteen meals was made the subject of careful analysis, the method being as follows in each case:—

The ingredients were all thoroughly mixed after weighing each separately, so that dietaries could afterwards be constructed from the weights. An aliquot part of the intimate mixture was thoroughly dried and weighed. In the dry material protein was determined from a nitrogen estimation, the fat by ether extractions in a Soxhlet's apparatus, the ash by burning and weighing, and the carbohydrate by difference. In this way the amounts of dry protein, fat, and carbohydrate respectively in the meal were obtained, and from these the calorie value was calculated.

[1] According to the recent issue of the Board of Trade Labour Gazette the average increase in the retail price of food since the commencement of the war is 68%, of which 20% represents the rise during the last twelve months

The average canteen dinner was found to be a good one, containing an energy value of about 1000 calories well distributed among the amounts of protein, fat, and carbohydrate. The cost of such a meal varied from 5*d*. to 9*d*., comparing very favourably with the sum of 1*s*. 2*d*. or 1*s*. 5*d*. required to purchase practically the same meal at a students' club and popular restaurant respectively. The meals brought from home by the workers were also submitted to analysis. The workers from home whose meals were obtained were not asked beforehand to bring a sample meal, but were interrogated at the entrance gates and asked to exchange the contents of their baskets for a sum ample to buy a meal at the canteen. In the case of men these meals were found to be adequate, but in the case of girls there was very wide variation, from 300 up to 1100 calories. As for the latter the breakfast meal before starting work often consists of white bread and boiled tea. The lower values connote definite under-nutrition. An investigation was also made at a well-managed hostel where each worker was at liberty to eat as much as he or she desired. The weekly cost price of food at this hostel in March, 1916, worked out at 15*s*. 2*d*. per man and 11*s*. 10*d*. per woman, the number of calories being respectively 3900 and 3000; the same figures were obtained from actual analysis and from data supplied by the management. The Memorandum ends with a table of simple daily meals designed to secure a well-balanced dietary for the assistance of caterers to munition workers. Each of the five daily diets given contains about 3000 calories at a cost of 24*d*. to 26½*d*., on the basis of prices ruling in April, 1916. The reading of the Memorandum leaves the impression that the best thought is being brought to bear on the problem of feeding the munition worker. Although there is nothing in the investigation which is very new, a valuable degree of practical certainty is being reached in regard to the minimum adequate diet required for a certain type of manual labour. No attempt has been made to modify drastically the ordinary diet of the people concerned. The herrings, cheese, and beans already mentioned do not appear very extensively in the dietaries. The Briton is naturally conservative in regard to what he eats and drinks, and there is fortunately no immediate imperative need for drastic change, but we think the opportunity should not be lost of demonstrating once and for all to the manual workers of this country that a perfect diet need not consist principally of meat and potatoes.

WAR RECORD OF THE LONDON MEDICAL SCHOOLS.—We have now received the figures for Guy's Hospital, which should be read in conjunction with those already given (THE LANCET, Sept. 23rd, p. 579) for the other London schools.

Guy's.—Joined, 1318. Died, 42. Honours: C.B., 3; C.M.G., 5; M.C., 12; D.S.O., 10; Order of St. John of Jerusalem, 2; Order of St. Sabe (Fifth Class), 1; Croix de Guerre, 1; Other distinctions, 2; Mentioned in Despatches, 46.

PRINCESS HENRY OF BATTENBERG'S HOSPITAL.—Dr. A. J. Rice-Oxley, medical director and physician to Princess Henry of Battenberg's Hospital for Officers, has received a gratifying and well-deserved acknowledgment from the personnel of the hospital of the value and qualities of his services as a colleague and administrator. This took the form of a signed address, and ran in these words:—

To A. J. RICE-OXLEY, Esq., M.D., M.R.C.P., Medical Director and Physician to Her Royal Highness Princess Henry of Battenberg's Hospital for Officers.
30, Hill-street, Mayfair, W.

SIR,—We, the undersigned members of the medical and nursing staff of Princess Henry of Battenberg's Hospital, desire to place on record our appreciation of your services to this hospital during the two years in which it has been in existence, from August 31st, 1914, to August 31st, 1916. Your unfailing courtesy and kindness to all, and your great skill and untiring energy and labour in, and on behalf of, the hospital have both endeared you to us and encouraged us to work together for the common good, thus assisting to make this hospital, we believe, to be one of the most successful of its kind and one of the happiest in which to work.

We trust that under your direction this hospital may continue its good work until in more peaceful times our services are no longer required.

The address was signed by Princess Henry of Battenberg and by the medical officers and nurses of the institution, including Lieutenant-Colonel A. S. Woodwark, R.A.M.C., the Officer in charge of Officers' Hospitals, and Colonel W. Allan May, R.A.M.C., the President of the Special Medical Board.

FOURTH SOUTHERN GENERAL HOSPITAL (T.F.).—This hospital is to be enlarged by the addition of Camel's Head School, Devonport. The Fourth Southern General Hospital (T.F.) will now comprise the Ford House Hospital and auxiliary establishments at Salisbury-road, Hyde Park-road, and Camel's Head. Lieutenant-Colonel H. W. Webber is in command.

MONTENEGRIN RELIEF FUND.—A central office for the Montenegrin Red Cross and Relief Fund has been opened at 11, Victoria-street, S.W. The fund, which has been registered under the War Charities Act, sends food and hospital necessaries to Montenegro, and donations are urgently needed. They may be sent to Lady Roper Parkington at 58, Green-street, Park-lane, W.

HOSPITAL FOR WOUNDED OFFICERS.—A new Russian hospital for the accommodation of British wounded officers was opened in temporary premises in South Audley-street, Mayfair, W., by the Prime Minister on Oct. 17th. As we announced last week, the donors are M. Mouravieff-Apostol, Chamberlain of the Russian Court, and his wife. Dr. C. Gould-May, who has been employed at the Anglo-Russian Hospital in Russia, will be in medical charge; the consulting staff being: physician, Dr. Wilfred J. Hadley; surgeons, Mr. R. P. Rowlands and Mr. Ivor Back; ear, Mr. H. J. Marriage; throat and nose, Mr. W. G. Howarth; radiographer, Mr. C. Gouldesborough; anæsthetist, Mr. G. A. Jones; and bacteriologist, Mr. W. B. Weir.

WAR HOSPITALS IN INDIA.—The Indian Council of the St. John Ambulance Association have issued another special war circular appealing for money to "enable them to meet a demand just received from the military authorities for a large supply of supplementary equipment for certain hospitals which are being opened in India for sick and wounded arriving from the front." Commenting on this appeal, the *Pioneer* says that the time would seem to have come when the Government should reconsider their position in connexion with these war hospitals, and this is the feeling generally. Not even the most ardent advocate of economy would object to the expenditure of public money on improving the amenities of life in the new hospitals in India. Liberal outlay in this direction would indeed be generally welcomed; and, if necessary, orders should be passed which would meet possible technical objections by the Accounts and Audit Departments. The Government of India may or may not have been justified in framing a war budget of modest dimensions; it will certainly not be justified in extending the policy of financial caution to the case of the wounded, especially as the articles immediately required can apparently be bought for hard cash in the open market.

THE Hospital Unit recently sent out by the British Red Cross Society and the Order of St. John, under the command of Dr. F. G. Clemow, C.M.G., has arrived at Galatz, Rumania.

TRAFALGAR DAY will be celebrated at the headquarters of the British and Foreign Sailors' Society, Commercial-road, London, E., by a reception and concert for wounded sailors from the adjacent hospitals.

THE LATE EDITH CAVELL.—In Paris on Oct. 11th, the first anniversary of the death of the heroic English nurse, a hospital and school bearing her name was opened as a memorial by M. Justin Godart, one of the Under Secretaries of State for War. The hospital contains 100 beds, but it is only a temporary building pending the erection of more extensive premises by public subscription. Sir George Frampton has presented the hospital with a bust of Miss Cavell. Professor Hartmann and Madame Curie are members of the staff. On the same day a memorial was unveiled in the nurses' dining-room at the Shoreditch Infirmary, where Miss Cavell was at one time assistant matron. Dr. C. Addison, who was present at the ceremony, paying a tribute to the noble example of Miss Cavell's life, said that the same unselfish motive which had inspired her life had stimulated many workers and business men at home. The execution of the most cherished hope of Miss Cavell—namely, that homes of rest for nurses should be established, has taken a practical form, as has already been announced. The honorary treasurer of the movement is Mr. Charles Campbell McLeod, 10, Lime-street, London, E.C., and the honorary secretary Mr. Wallace Braby, 25, Victoria-street, London, S.W.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the quarterly examination in Practical Pharmacy held on Oct. 12th the following candidates were successful:—

Margaret Gladys Best, London School of Medicine for Women; James Bassett Brash, St. Bartholomew's Hospital; John William Chadwick, Manchester University; Jane Crawford, London School of Medicine for Women; Dennis Reginald Curnock, Charing Cross Hospital; Albert William Abell Davies, Guy's Hospital; Herbert Davies and Sidney Richard Eccles Davies, St. Bartholomew's Hospital; Martin Joseph de Lemos, King's College Hospital; William Allison Drake and Mohammed Nour Eldin, St. Bartholomew's Hospital; Leonard Henry Brittan Evans, Cambridge University and Guy's Hospital; Edgar Thomas Flood, St. Mary's Hospital; Edwin Stowell Gawne and William Francis Gawne, Liverpool University; Geoffrey Herbert Gidlow-Jackson, Cambridge University and London Hospital; Meilk Girgis, University College Hospital; Edward Francis Strathearn Gordon, Cambridge University and St. Bartholomew's Hospital; Thomas Sacheverell Greenaway, Westminster Hospital; Reginald Rowley Halsall, Manchester University; Douglas Vernon Halstead, Guy's Hospital; John Hollings, London Hospital; George Raymond Hubbard, Guy's Hospital and private study; John Haslam Johnston, Charing Cross Hospital; Thomas Edward Moody-Jones, University College, Cardiff; Geoffrey Burman Lowe, Cambridge and Birmingham Universities; Kenneth Alexander Ingleby Mackenzie, Oxford University and St. Bartholomew's Hospital; Arthur Harry Morris, Bristol University; Hussein Nosrat, St. Bartholomew's Hospital; Aron Ber Pastel, Paris and Charing Cross Hospital; Walter Erichsen Powell, Charing Cross Hospital; Charles Farrell Rainer, London Hospital; William Sleeman Roberts, St. Mary's Hospital; Edith Marjorie Rooke, London School of Medicine for Women; Ronald Cunliffe Shaw, Manchester University; and Greta Isabel Yeoman, London School of Medicine for Women.

UNIVERSITY OF GLASGOW.—The following results of examinations at Glasgow University are announced:—

DEGREES OF M.B., CH.B.

The following have passed in the subjects indicated—A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics; Path., Pathology:—

Roderick Bethune, Path.; Alexander Black, Path.; William George Burns, A., P.; Michael John Cahalane, Path.; Malcolm Chalmers, Path.; John Parker Chisholm, M., Path.; Hugh Auld Cochrane, Path.; Alexander Conner Connell, M.; Edward Mitchell Erskine Cumming, M.; Archibald Browning Smith Drysdale, Path.; William Edgar, M.; Basil William Henry Fergus, Path.; Duncan Finlayson, Path.; James Paton Fleming, Path.; Allan Donald Fraser, P.; George Keith Fulton, M., Path.; James Biggam Douglas Galbraith, M., Path.; Matthew Forsyth Gibson, A., P.; Francis Denis Gillespie, A., P.; Adam Smith Goudie, Path.; James Smith M'Lean Gray, Path.; John Forrest Hamilton, A., P.; John Gordon Harrower, Path.; Andrew Henderson, Path.; James Charles Hendrie, Path.; Morris Hyman, Path.; John Irving, Path.; Robert Paterson Jack, M., Path.; James Patrick Kilty, Path.; Chung Un Lee, A., P.; Douglas Marshall Lindsay, P.; Jacob Lipschitz, Path.; William Wilson Lundie, M.; Duncan MacColl, M.; Robert Tweedie M'Gibbon, Path.; Thomas M'Gowan, Path.; James Athole Campbell MacGregor, Path.; John William Mackay, Path.; William Stanley Lones M'Leish, Path.; William M'Linden, Path.; Findlay Kerr Macmillan, M.; John Spence Meighan, A., P.; John Muil Melvin, Path.; William Duff Miller, Path.; William Napier, Path.; Bryce Frood Niblock, M.; Isaac Ladipo Oluwole, M., Path.; John Bernard O'Neill, M.; Norman Bligh Peacock, Path.; George Pearson, Path.; Robert James Peters, Path.; Thomas Poole, M.; Rahmat Ullah Qureshi, M.; Andrew Riddell, M., Path.; Samuel Murdoch Riddick, Path.; John Joseph Robertson, P.th.; Thomas Stark, M., Path.; Donald Stewart, A.; Pat Adam Stewart, Path.; Archibald S. Strachan, Path.; Joseph Turner Taylor, M., Path.; Adolph Samuel van Coller, M.; James Churchwill Vaughan, Path.; William Andrew Walker, M., Path.; Harold Douglas Wallace, Path.; John Allan White, Path.; Thomas M'Skimming Wilson, Path.; George Macfeat Wishart, Path.; and William Young, M.

Women.—Helen Frances Allinson, A., P.; Ellen Davidson Anderson, M.; Grace Hay Anderson, P.; Margharita Mary Lamont Couper, Path.; Grace Anderson Fleming, Path.; Mary Brown Gillespie, M.; Jane Evelyn Hanson, Path.; Janet Whyte Hepburn, Path.; Elizabeth Smith Inglis, P.; Margaret Logan, A.; Elizabeth Cochrane Loudon, Path.; Mary Jessie Macdonald, Path.; Agnes Purcell M'Gavin, M., Path.; Margaret Turner M'George, Path.; Maud Elizabeth Drysdale Mackinnon, M., Path.; Margaret Elizabeth MacLaren, A., P.; Caroline Jane Maclennan, A., P.; Margaret Gardner M'Vey, Path.; Florence Frances Mitchell Milne, Path.; Mercedes Margaret Morton, M.; Georgina Murdoch, A., P.; Elizabeth Park Young Paterson, Path.; Vida Johnston Perry, Path.; Agnes Petrina Routledge, Path.; Eliza Dorothea Sandison, A.; Marjory Mary Scanlan, M., Path.; Jane Elder Shortt, M.; Margaret Marion Catherine Steedman, Path.; Muriel Amy Stowe, A., P.; Dorothea Helen Suttie, Path.; Jean Banks Thomson, A., P.; and Lydia Ida Huber Torrance, Path.

The following have passed in the subjects indicated—B., Botany; Z., Zoology; P., Physics; C., Chemistry:—

Alexander Gardner Aitken, B., P.; William Simpson Aitken, B., P.; Daniel Edwin Alley, Z.; Ralph William Sydney Ashby, B.; Alexander Baird, C.; Gavin Haddow Boyd, P.; William Brock, B.; Douglas Brown, B.; Alexander Orr Bruce, B., P., C.; Stewart Caldwell, B., P., Douglas Hugh Clutterbuck, B., Z.; Archibald Robson Cook, P.; William Davie, B., P.; James Dawson, B., P.; Alexander Smith Dick, C.; James Ferguson Dunn, B.; Andrew Naismith Fergus, B., P.; Bruce Paterson Gardner, Z.; Hugh Shaw Dunn Garven, B., P.; Westall Geyer, B., P.; Robert Dick Gillespie, B., P.; Alan Dakers Gowans, B.; Gerald Francis Graham, Z., C.; Ross Alfred Grant, B., P.; Alexander Gray, B.; John Andrew Hamilton, B., P.; George Harvey, Z., C.; Hugh Wardrop Howieson, B., Z., P., C.; Thomas Downie Hunter, Z.; Jack Hurwich, B., P.; Peter Hutchison, B., Z., C.; George Jamieson, Z.; Lennox Matthew Johnston, B., P.; William Macdonald Johnston, B., P.; Hugh Kay, B., P.; David Alison Ker, B., P.; James Arthur Kerr, B., C.; Crawford Alexander Lindsay, B., P.; Alexander Logan, P.; Andrew Logan, B., Z., C.; George M'Alpine, Z.; James Macdonald, P.; John M'Dougall, B., P.; Thomas John M'Kail, B.; George MacKerracher, B., P.; Patrick M'Kay M'Killop, B., P.; Archibald M'Whinney, Z.; Matthew Findlay Guthrie Main, B., P., C.; Arthur Markson, B., P.; David Meikle, B., P.; Edin Ernest Miller, B., P.; Malcolm James Miller, B., Z.; Peter Milligan, B., P.; John Malcolm Lamont Mitchell, B., P.; William Muir, Z., C.; James Paton Neilson, B., Z., P.; William Guthrie Niblock, Z., P.; Francis Ignatius O'Brien, Z., P.; John Smith M'Laren Ord, B.; Irvine Paterson, B., Z., P., C.; Thomas Core Porter, B., P.; Archibald Rae, B., Z., P., C.; Joseph Francis Reilly, B., P.; Cyril Gladstone Richards, B., P.; William John Brownlow Riddell, B., P.; John James Austin Ritchie, B., P.; Ian Christie Robertson, B., Z., C.; Leopold Harold Salzmann, Z.; Ian MacRae Sandilands, Z., C.; Thomas Stewart Sargent, B., Z., P.; Wilfrid Henry Scott, B., P.; Henry Edmund Seiler, B., P.; John Shanks, Z., C.; Robert M'Dougall Smellie, B., P.; Archibald Gordon Smith, B., P.; Charles Milliken Smith, B.; David Croydon smith, B., P.; Andrew Snaddon, B., P.; John M'Laughland Strang, B., P.; Charles Noel Temple, C.; James Nisbet Tennent, B., P.; Daniel Maclachlan Thompson, B., P.; Jonathan Robson Turner, B., Z., P., C.; John Miller Usherwood, B., Z.; Richard Walkingshaw, B., P.; James Dunlop Whiteford, B., Z., P.; Alexander Fraser Whyte, B., P.; James David Wilson, B., Z., P.; William Wilson, B., P.; John Wingate, B., P.; and John Wyllie, B., P.

Women.—Annie May Alexander, B., C.; Martha Lindsay Anderson, B., Z.; Marion Bell Armstrong, B., P.; Mary Baird, B., P.; Muriel Cecil Sydenham Balfour, B., Z., P.; Rosa Bass, B., Z., P.; Margaret Bennett, B.; Mary Eleanor Berry, B., Z.; Eliz Margt. Victoria Hazelwood B. Bird, B., P.; Margaret Watson Blackwood, B., P.; Marion Cadzow Boyd, B., Z.; Elizabeth Evelyn Brown, B., P.; Muriel Jenny Brown, B., P.; Lillias Elizabeth Barr Buchanan, B., P., C.; Jemima Marianna M'Kechnie Calder, B., P.; Gladys Muriel Chapell, Z.; Christabel Lilie Margaret Charlesworth, B., P.; Annie Brown Cooke, B., Z., P.; Ellen Bell Cowan, B., P., C.; Margaret Beveridge Calder Craig, B., P.; Edith Margaret Davidson, B., P., C.; Elsie Florence Farquharson, B., P.; Elizabeth Jardine Findlay, B., P.; Christian Meiville Fleming, B., P.; Dorothy Jean London Gallie, Z., P., C.; Agnes Mary Gibson, B., Z., P., C.; Margaret Elizabeth Gibson, B., P.; Muriel May Gilmour, B., P.; Agnes Scott Glover, B., P.; Mary Archibald Grant, B., Z., P., C.; Mary Burns Grant, B., P.; Brunhilde Mary Grieve, B., P.; Agnes Brownlie Hart, B., C.; Isabel Edgar Russell Jeffrey, B., Z., P.; Margaret Longwill Johnston, B., P.; Dora Karnovski, B., Z.; Anna Taylor Kellock, B., Z., C.; Eleanor Heald Kelly, B.; Annie Campbell Kerr, Z.; Jane Stobo Knight, B., P.; Agnes Annie Lawson, B., Z.; Isabella Lumsden, B.; Moira Elspeth Nichol MacAlpine, B.; Jane Carrick MacDonald, B., P.; Mary Johnston Macfarlane, B., P.; Jean MacIver Mackintosh, B., Z., P., C.; Janet Findlay M'Lees, B., P.; Alexandrena Miller Maclennan, B., P.; Marie Josephine M'Naught, B., Z., P.; Laura Margaret Dorothea Mill, B.; Marjorie Mitchell, Z.; Janet Dick Montgomery, B.; Effie Niblock, B., P.; Annie Girdwood Pollock, B., P.; Isobel Reid, B., P., C.; Winifred Ethel Douglas Ross, B., C.; Mary Russell, B., P.; Dorothy Elspeth Agnes Rutherford, B., Z.; Elizabeth Helen May Slimmon, B.; Marion Smellie, B., P.; Alexandra Walker Smyllie, B., P.; Mary Steven, B., Z., P.; Christina Smith Stoddart, B., P.; Margaret Mavor Stuart, B., P., C.; Dorothy Mary Summers, B., P., C.; Agnes Dunbar Temple, B., P.; Carolina Jane Tessier, B., Z., P.; Marian Thom, B., P.; Dorothy Brownlee Thomson, B., Z., C.; Eleanor Marjorie Torrance, B., P.; Jeanie Livingstone Darling Wilson, B., P.; Mary Lyle Wilson, B., P.; Helen Frances Wingate, B., P.; and Elizabeth Young, B., Z., P.

LITERARY INTELLIGENCE.—Messrs. D. Appleton and Co. will shortly issue new editions of the following works: 1. "The Principles and Practice of Medicine," by Sir William Osler, Bart., M.D., F.R.S. Revised eighth edition. The need for reprinting has given opportunity for considerable revision, notably in the section dealing with infectious diseases. 2. "Preventive Medicine and Hygiene," by Milton J. Rosenau, M.D. New second edition. Amongst the chapters rewritten are those on leprosy, beri-beri, pellagra, and quinine prophylaxis for malaria. 3. "Diseases of Infancy and Childhood," by L. Emmet Holt, M.D., Sc.D., LL.D. New seventh edition. The whole book has been completely revised, with the addition of 16 new chapters and 15 new illustrations. 4. "A Text-book of Bacteriology," by Philip Hanson Hiss, Jr., M.D., and Hans Zinsser, M.D. New third edition.

INFANTILE PARALYSIS IN ABERDEEN.—Dr. Matthew Hay, medical officer of health of the city of Aberdeen, in his monthly report to the Aberdeen town council, states that during the month of September 10 cases of infantile paralysis were reported, making 76 cases in all since the outbreak of the disease up to the end of September. During the present month, October, 3 further cases have been notified, 2 of which, however, took ill in September, and 1 as far back as May. The type of the disease continues mild, only 3 deaths having occurred. All except 2 of the cases for September were in houses of three rooms or under, and with

2 exceptions all the children were under 4 years of age. No contact or association with previous cases was established for any of the cases. Proceeding, Dr. Hay reviews the concurrent, though greatly more severe, epidemic of poliomyelitis in New York, basing his remarks on the weekly bulletins issued by the New York Department of Health. In New York there was only slight evidence of the disease in May, but in June the epidemic was definitely established, the cases multiplying with great rapidity (320 in June, 3731 in July, 4104 in August), and then subsiding quickly from the middle of August. Up to the end of August 1932 deaths occurred, nearly 1 in 4. The type of the disease seems to have been severe from the beginning and to have remained so up to the end of the period for which information is available. In Aberdeen there were also a very few cases in May, and the epidemic was definitely started in June. Referring to the general belief in this country that the percentage of cases among adults was considerable, Dr. Hay divides the cases in New York and in Aberdeen into the following age-groups: (*a*) cases under 1 year; (*b*) cases above 1 and under 3 years; (*c*) cases above 3 and under 5 years; (*d*) cases above 5 and under 10 years; and (*e*) cases above 10 years, and finds the following percentage for the two places: Aberdeen, 21, 55, 15, 8, and 1·3; New York, 11, 57, 15, 14, and 2·7. These percentages show the percentage among infants, in proportion to the total cases, somewhat fewer in New York than in Aberdeen, and the cases among persons over 5 years of age somewhat more numerous, but in neither town does it show the proportion of cases among adults to be high.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly meeting of the Council was held on Oct. 12th, Sir William Watson Cheyne, the President, being in the chair. Mr. Vincent Warren Low was introduced and made a declaration in the terms of the oath prescribed by the Charter of 1800 and took his seat as a member of the Council. The best thanks of the Council were given to Sir John Bland-Sutton for presenting to the museum a collection of four gorilla skeletons, the skeleton of a chimpanzee, and some skulls. It was resolved that, as recommended by the Library Committee, the library shall be closed at the hour for screening lights. Sir John Bland-Sutton, on behalf of the Committee on the Annual Report of the Council, submitted a draft report to be presented to the Fellows and Members at the annual meeting on Thursday, Nov. 16th. The report was approved and adopted. Sir George H. Makins was re-elected a member of the Committee of Management. The Council nominated as the twenty-fourth Jenks scholar Mr. John Sinclair Shadwell, formerly of Epsom College and now at Guy's Hospital Medical School. A letter was read from Lieutenant-Colonel James W. Barrett, R.A.M.C., F.R.C.S., calling the attention of the Council to the disabilities under which Fellows of the College when resident abroad, laboured as regards taking part in the election of members of Council. A committee was appointed to consider and report as to the possibility of making a long interval between the date of nomination of candidates and the election.

MEDICAL MAYORS IN THE WEST OF ENGLAND.—The Lord Mayor of Bristol (Mr. Barclay J. Baron, M.B., C.M.Edin.), at the unanimous wish of the city council, has consented to be re-nominated for a second term of office.—Alderman H. Gordon Cumming, F.R.C.S. Eng., has accepted the invitation of the Torquay town council to become mayor for the ensuing year.

GIFTS OF THE KHARTOUM CHAPTER.—The Khartoum Chapter of the Daughters of the British Empire in Wilmette, Illinois, U.S.A., has endowed a bed for a year in Roehampton House, one of the Queen Mary Auxiliary Convalescent Hospitals for crippled sailors and soldiers. The bed is known as the "Khartoum Chapter Bed." The chapter has also sent hospital supplies to Beaufort War Hospital, Bristol, and to the Scottish National Red Cross Hospital in Glasgow.

THE WILL OF THE LATE SIR VICTOR HORSLEY.—Probate of the will of the late Sir Victor Horsley has been granted to Lady Horsley, the property being of the value of £35,000. The will directs that within 24 hours of his death a post-mortem examination of his body shall be made by the pathologist of the National Hospital for the Paralysed and Epileptic, Queen-square, and that his brain and skull should be given to and preserved by the Neurological Society of London, and the remainder of his body to the museum of University College for the preparation of such specimens as the curator may think fit; the pathologist who makes the examination to be paid 10 guineas. The testator gives his professional furniture, books, and instruments to such of his children as may enter the medical profession, and if none of them do, then to the pathological department of University College. All other his property he leaves to his wife for life, with remainder to his children as she may appoint.

THE LATE DR. J. G. MACINDOE.—James Gray Macindoe, M.B., C.M.Edin., late Major, R.A.M.C. (T.F.), died recently at his residence, Torrington, Devon, in his forty-eighth year. The deceased was well known and highly respected, and had an extensive practice. He held several appointments and was medical officer to the workhouse and for two districts of the Torrington union, and also public vaccinator.

ASSISTANT MEDICAL OFFICER OF HEALTH AT PLYMOUTH.—The Plymouth borough council had recently decided to advertise for an assistant medical officer of health, at a commencing salary of £300, increasing by £25 yearly to £400 per annum. The candidate was required to devote the whole of her or his time to the work, which was to be principally in connexion with the maternity and child welfare work of the council. At the last meeting of the council it was stated that the commencing salary offered for the post had to be increased to £350, "because the medical papers refused to accept these advertisements with a less salary."

THE LATE DR. JOHN R. HAMILTON.—Dr. Hamilton, a well-known medical practitioner in the south of Scotland, died on Oct. 7th at his residence, Elm House, Hawick, Roxburghshire, aged 63 years. He graduated M.B., C.M.Edin. in 1875, taking the L.R.C.S.Edin. in the same year, and the M.D. of his University, with commendation, in 1878. He was keenly interested in all that concerned the welfare of his profession and was a member of the council of the British Medical Association, being at one time chairman of the Scottish committee.

THE Harveian Oration of the Royal College of Physicians of London was delivered on Wednesday afternoon last, Oct. 18th, by Sir Thomas Barlow.

THE Gresham Lectures will be delivered on Tuesday, Wednesday, Thursday, and Friday of next week at Gresham College, Basinghall-street, E.C., by Dr. Harry Campbell.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT re-assembled on Tuesday, Oct. 10th. The first duty of the Legislature was to authorise the expenditure of money for the prosecution of the war. For that purpose a further Vote of Credit to the amount of £300,000,000 has been passed by the House of Commons, and at the current rate of expenditure this sum will suffice until Christmas. This brings the aggregate of the Votes of Credit sanctioned since the beginning of the war up to £3,132,000,000. The Prime Minister, in reviewing the military situation, said that this was not a moment for faint hearts, faltering purpose, or wavering counsel. "The ends of the Allies," he continued, "are well known. They have been frequently and precisely stated. They are not selfish ends. They are not vindictive ends, but they require that there shall be adequate reparation for the past and adequate security for the future. On their achievement we in this country honestly believe depend the best hopes of humanity." The House of Commons has been giving its attention almost entirely to questions relating to the war—man-power, volunteers, Army contracts, and food supplies.

Health of Troops in Mesopotamia.

In view of the situation in Mesopotamia earlier in the year, Mr. ASQUITH'S few remarks on the present position are worthy of note. He said that the hot weather of the past month had hampered active operations, but substantial progress had been made in the improvement of our rail and river communications. The health of the troops had also greatly improved. General MOORE assumed the command of the forces in Mesopotamia on August 28th, and his most recent reports indicated that real headway was being made in overcoming the difficulties which had hitherto hampered our operations in this theatre.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 11TH.

Sale of Cocaine.

Mr. HOGGE asked the Home Secretary whether he was in a position to state whether he intended to carry out his proposed restrictions on the use of cocaine by unregistered dentists.—Mr. H. SAMUEL answered: The exemption which allows unregistered dental practitioners to purchase solutions containing 0·1 per cent. or more of cocaine has been extended to Oct. 31st. I am satisfied that there is no need to extend

the exemption beyond that date, as other efficient local anæsthetics will be available in sufficient quantities.

Mr. HOGGE: Will the right honourable gentleman apply this restriction also to registered dentists so that the whole supply may be properly controlled?—Mr. H. SAMUEL: I am advised that it is in no way necessary to apply restrictions to registered dentists, because all those dentists are known from the very fact of registration, but any person could call himself an unregistered dentist and could obtain a supply of cocaine if this restriction were not in force.

Mr. HOGGE: Is the right honourable gentleman aware that a large number of what he calls registered dentists, 1600 are not qualified and got on the Register when legislative provisions were made with regard to registration?—Mr. H. SAMUEL: They have a recognised status.

THURSDAY, OCT. 12TH.

Incapacitated Prisoners of War.

Mr. MALCOLM asked the Under Secretary for Foreign Affairs whether the offer of the Danish Government to receive invalid British prisoners of war had been accepted; and whether any such were now interned in Denmark.—Mr. J. HOPE (on behalf of Lord ROBERT CECIL) answered: We have informed the Danish Government that we highly appreciate their generous offer, which has received our most careful consideration. We understand, however, that ample accommodation for prisoners of war is still available in Switzerland, the only difficulty encountered in the operation of the arrangement in force with that country being that of inducing the German Government to agree to the transfer thither of all British officers and men who are entitled to the privilege. In these circumstances we feel that it would be premature to extend the arrangement to other neutral countries at present, but should the accommodation in Switzerland prove insufficient in future, we shall be glad to reconsider the kind offer made to us by the Danish Government.

Replying to a further question, Mr. HOPE said that an agreement had been arrived at with the Bulgarian Government for the exchange of incapacitated prisoners of war.

The Price of Milk.

Answering Mr. BARNES, Mr. RUNCIMAN (President of the Board of Trade) said: I am aware that in certain London districts the price of milk has recently been raised from 5*d.* to 6*d.* per quart, the price which has been in vogue in several other districts for several months. The Board of Trade, in conjunction with the Board of Agriculture, have been following the course of milk prices with careful attention. They have also obtained certain data regarding the cost of production and distribution, but as stated, in the report of the Departmental Committee on Prices, it is admittedly a very difficult thing to state accurately the cost of production of a gallon of milk. Several of the recommendations contained in that report deal, however, with the question of milk prices, and immediate action will be taken on those where practicable. With a view to enabling dairy-farmers to meet the strain of work during the winter, the further calling up of their men for military service has been deferred, and it is expected that they will respond by offering their milk on terms which will not involve any further rise in retail prices.

Medical Supplies in Mesopotamia.

Sir JOHN JARDINE asked the Financial Secretary to the War Office whether he was in a position to make a statement about any increase of transport on the River Tigris and between Kurma and Nasiriyah, on the River Euphrates; and whether it was now practicable without unreasonable delay to send on from Basra to the garrisons on those rivers supplies of medicines and hospital appliances and comforts sent for their use.—Mr. FORSTER replied: Yes, sir, since the end of July, when the War Office took over control, there has been a large increase in the river transport available in Mesopotamia. The increase is already 64 per cent., and will shortly be 100 per cent. The whole system has been reorganised, and there is ample transport available to take up promptly all the medical stores required.

Experiments with Chlorine Gas.

Mr. CHANCELLOR asked the Home Secretary whether the 84 experiments reported in the return for 1915 as having been performed for the Medical Research Committee by Dr. M. W. Flack included or were in addition to those performed by him on cats and other animals with chlorine gas; whether these gas experiments were paid for out of National Health Insurance funds; and, if so, whether the Auditor-General's attention was called to the matter and the payments passed by him as a proper use of National Insurance funds.—Mr. C. ROBERTS (representing the National Insurance Commissioners) wrote in reply: The experiments referred to in the question are included in the 84 reported in the return. The gentleman referred to is a member of the staff of the Medical Research Committee established by Regulations made under Section 16 of the National Insurance Act, 1911, and the expenditure of that Committee is made from moneys provided by Parliament under Subsection (2) (b) of that section. The accounts for the matters in question come before the Controller and Auditor-General, who will make such observations as he thinks fit upon them to the Public Accounts Committee in due course.

TUESDAY, OCT. 17TH.

Dentists in Mesopotamia.

Answering Sir JOHN JARDINE, Mr. LLOYD GEORGE (Secretary for War) said: The force in Mesopotamia has been supplied with all the dentists and dental mechanics for whom it has asked. The Army Council were quite recently informed by cable that no more were required. The distribution of the dentists and dental mechanics sent out is, of course, a matter for the discretion of the local military authorities.

Sanitary Conditions of Knockaloe Camp.

Sir W. BYLES asked the Home Secretary whether he had received complaints of the unhealthy and insanitary condition of the Knockaloe camp, Isle of Man; and whether, in view of the approaching winter, he would see that the huts were weather-tight, that the drinking water was filtered, that the sanitary and sleeping arrangements were adequate, and that food was sold to those who could buy it at cost price.—Mr. H. SAMUEL wrote in reply: Knockaloe camp receives the constant attention of the insular authorities and of the Destitute Aliens Committee on behalf of the Home Office. The sanitary arrangements have recently been the subject of special investigation; a new system of drainage is under construction and its completion is being expedited. Steps are being taken to ensure that the huts will be proof against the winter weather when it comes. The supply of drinking water is excellent and is the same as that used by the officers and the town of Peel. The health records are very good. Food is sold in the canteen at low prices, and any profits derived from the sale are handed over by the camp authorities to prisoners' committees and devoted to the general welfare of the prisoners.

WEDNESDAY, OCT. 18TH.

Typhoid and Paratyphoid Fever amongst Troops.

Answering Mr. CHANCELLOR, Mr. FORSTER (Financial Secretary to the War Office) said: Up to August 25th, 1916, 1501 cases were finally diagnosed as typhoid fever amongst the British troops in France, 903 amongst inoculated men and 508 amongst men not inoculated. There were 166 deaths, 47 of which were amongst the inoculated and 119 amongst uninoculated. To the same date there were 2118 cases of paratyphoid fever, 1968 amongst inoculated men and 150 amongst men who had not been inoculated. There were 29 deaths, 22 of which were amongst the inoculated and 7 amongst the uninoculated.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BERMONDSEY PARISH.—Medical Officer. Salary £450 per annum.

BIRMINGHAM, LITTLE BROMWICH FEVER HOSPITAL.—Female Assistant Medical Officer. Salary £300 per annum, with board, &c.

BRISTOL ROYAL INFIRMARY.—House Physician. Salary at rate of £120 per annum, with board, &c.

CAMBRIDGESHIRE ASYLUM, Fulbourn, near Cambridge.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, &c.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon. Salary £150 per annum, with board, &c.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with board, &c. Also Assistant House Surgeon, for six months. Salary £120 per annum, with board, &c.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House Physician. Salary at rate of £160 per annum, with board, &c.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Surgeon to Throat, Nose, and Ear Department.

HUDDERSFIELD COUNTY BOROUGH EDUCATION AUTHORITY.—Assistant School Medical Officer. Salary £300 per annum.

HULL, CITY AND COUNTY OF KINGSTON-UPON-HULL INFECTIOUS DISEASES HOSPITALS.—Resident Medical Officer. Salary as arranged, with board, &c.

ITALIAN HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, &c.

LEICESTER ROYAL INFIRMARY.—Pathologist to Infirmary and Venereal Diseases Section. Salary at rate of £500 per annum. Also Medical Officers in charge of Clinics and Beds. Salary £200 for Male Officer and £150 for Female Officer. Also Vacancy on Resident Surgical Staff. Salary £250 per annum.

LONDON LOCK HOSPITAL (MALE), Dean-street, Soho, W.—House Surgeon for six months. Salary at rate of £150 per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, &c.

MANCHESTER ROYAL EYE HOSPITAL.—House Surgeon. Salary £120 per annum, with board, &c.

MANCHESTER ROYAL INFIRMARY CONVALESCENT HOSPITAL, Cheadle.—Resident Medical Officer, unmarried. Salary £225 per annum, with board, &c.

NEWCASTLE-UPON TYNE AND NORTHUMBERLAND SANATORIUM FOR CONSUMPTIVES, Barrasford, North Tyne.—Resident Medical Officer.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Four House Physicians, Four House Surgeons, Accident Room House Surgeon, House Surgeon to Aural and Ophthalmic Departments, House Surgeon to Skin and Gynecological Departments, and House Surgeon to Out-patient Dressing Department.

NOTTINGHAM GENERAL HOSPITAL.—Two House Physicians and One Assistant House Surgeon for six months. Salary at rate of £250 per annum each, with board, &c.

PERTH, COUNTY AND CITY ROYAL INFIRMARY.—House Surgeon. Salary at rate of £200 per annum, with board, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant in X Ray and Finsen Light Department.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, &c.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary £350 per annum.

SCOTTISH WOMEN'S HOSPITALS, 2, St. Andrew-square, Edinburgh.—Medical Women for Serbian Unit in Russia. Salary at rate of £200 per annum. Also Radiographer (women).

SHEFFIELD CITY HOSPITALS, INFECTIOUS DISEASES.—Resident Medical Officer at Lodge Moor Hospital.

SHEFFIELD, ROYAL INFIRMARY.—Two House Surgeons. Salary £100 per annum, with board, &c.

SOUTH LONDON HOSPITAL FOR WOMEN, 103, South Side, Clapham Common, S.W.—Female House Physician and House Surgeon for six months. Salaries at rate of £100 per annum, with board, &c. Also Temporary Female Assistant Physician to Children's Department.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anæsthetist. Salary £150 per annum, with board, &c.

Births, Marriages, and Deaths.

BIRTHS.

DE MOWBRAY.—On Oct. 16th, at Grosvenor House, Southampton, the wife of Ralph M. de Mowbray, F.R.C.S. (temporary Lieutenant, R.A.M.C.), of a son.

FRANKAU.—On Oct. 13th, at Tenby-mansions, Nottingham-street, W., the wife of Claude H. S. Frankau, F.R.C.S., Major, R.A.M.C., of a son.

MCMULLAN.—On Oct. 11th, at Southsea, the wife of George McMullan, M.B., Blair Lodge, Wallingford, of a daughter.

MARRIAGES.

ASHTON—MORHAM.—On Sept. 23rd, at 17, Mansion House-road, Edinburgh, by the Rev. James Lumsden, B.D., Minister of Tolbooth Parish, temporary Captain Basil Cedric Ashton, R.A.M.C., to Agnes May, youngest daughter of George Morham, Edinburgh.

HARDY—RITCHIE.—On Sept. 14th, at the Parish Church, Creich, Cupar, Fife, Captain Thomas Lionel Hardy, R.A.M.C., to Elizabeth Clark, youngest daughter of the Rev. John Ritchie, Minister of Creich.

STEWART—MYLNE.—On Oct. 12th, at Beolali, India, Captain William Stewart, R.A.M.C., to Dorothy Evadne, younger daughter of Ernest Mylne, Esq., of Behea, India, and of Ellenborough House, Roehampton, Surrey.

DEATHS.

FARR.—On Oct. 11th, suddenly, at Earl's Court-road, S.W., Frederick Arthur Farr, M.R.C.S., L.R.C.P., in his 67th year.

HICKMAN.—On Oct. 16th, at "The Hollies," Wanstead, Herbert Vigers Hickman, M.B. Lond., aged 54.

LACEY.—On Oct. 11th, died of wounds, Lieutenant William S. Lacey, R.A.M.C., L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng., D.M.D. Harvard, aged 29 years.

PUZEY.—On Sept. 10th, at Prince's-avenue, West Kirby, Cheshire, suddenly, Chauncy Puzey, F.R.C.S., formerly of Rodney-street, Liverpool.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

HEINEMANN, WILLIAM, London.
The Influence of Joy. By George Van Ness Dearborn. Price 5s. net.

HOEBER, PAUL B., New York.
Immunisation against Tuberculosis. By Karl von Ruck, M.D., and Silvio von Ruck, M.D.

LAURIE, T. WERNER, London.
Old Glass and How to Collect it. By J. Sydney Lewis. Price 15s. net.
The German Woman and Her Master. By H. de Halsalle and C. Sheridan Jones. Price 2s. net.

MACMILLAN COMPANY, THE, London and Canada.
A System for Case-taking, with Explanatory Notes. By G. W. Ross, M.A., M.B. Toronto, M.R.C.S. Eng., L.R.C.P. Lond. Price 2s. net.

MASSON ET CIE., Paris.
Sémiologie des Lésions nerveuses périphériques par Blessures de Guerre. Par J. Tinel, Ancien chef de Clinique et de Laboratoire de la Salpêtrière, Chef du Centre neurologique de la IVe Région. Avec une Préface du Professeur Dejerine. Price 12 fr. 50.

SCIENTIFIC PRESS, THE, Limited, London.
Clinical Notes for Probationers. By Félice Norton. Price 1s net.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.
A Method for the Identification of Pure Organic Compounds, based on Chemical Properties and Chemical Reactions. By S. P. Mulliken, Ph.D. Vol II. Price 21s. net.
Analytical Chemistry, based on the German Text of F. P. Treadwell. Translated and revised by W. T. Hall, S.B. Vol. I. Qualitative Analysis. Fourth English edition. Price 12s. 6d. net.

Notes, Short Comments, and Answers to Correspondents.

HOSPITALS AND DISPENSARIES IN HONG-KONG.

THE Hon. Claud Severn, Colonial Secretary, in his report on the Blue-book of Hong-Kong for 1915, states that the estimated total population of the Colony, including the New Territories, is now 509,160. During the year 3085 in-patients and 14,499 out-patients were treated at the Civilian Hospital. In the Victoria Hospital for Women and Children at the Peak, 158 patients came under treatment. At the Kennedy Town Infectious Diseases Hospital 5 cases were treated, all being small-pox. At the Tung Wa Hospital, in which only Chinese are treated, there are 323 beds, and 4796 patients were accommodated during 1915, and at the branch hospital for small-pox cases (also Chinese only) 7 patients were admitted. The Alice Memorial and Affiliated Hospitals are managed and controlled by the missionaries resident in Hong-Kong, agents of the London Missionary Society, and consist of the Alice Memorial Hospital (opened in 1887), the Nethersole Hospital (opened in 1893), the Maternity Hospital (opened in 1904), and the Ho Miu Ling Hospital (opened in 1906). The total number of in-patients in 1915 was 1059, and the number of labours in the Maternity Hospital was 428. The new Kwong Wa Hospital for Chinese in the Kowloon Peninsula contains 70 beds, and 1904 patients were accommodated during 1915. One of the most important institutions in the colony not supported by Government funds is the Matilda Hospital, which stands on a commanding site of nearly three acres at Mount Kellet in the Hill District. It consists of a main building containing six wards with 26 beds, quarters for four nurses, a house for the medical officer in charge, and an operation block. A maternity ward, connected by a covered way, is in course of erection. The total cost of the buildings and their equipment has been more than $600,000. The hospital was erected in pursuance of the directions of the late Mr. Granville Sharp, who died in 1899, and who by his will left upwards of $2,000,000 in trust "for the erection and maintenance of a hospital at Mount Kellet to the glory of God and the good of men, in loving memory of his sainted wife, Matilda Lincolne." The objects of the testator are thus defined: "(*a*) To provide, carry on, and maintain a hospital for the benefit of patients primarily who are poor, helpless, and forsaken, and to provide gratuitous medical relief to any such persons suffering from disease or ill-health. (*b*) The hospital shall be considered to be established as a religious and evangelistic institution. (*c*) The hospital is reserved for British, American, and European patients."

Nine Chinese public dispensaries are maintained by voluntary subscriptions to provide the Chinese with the services of doctors whose certificates will be accepted by the registrar of deaths, and with the services of interpreters who can assist the inmates of houses where cases of infectious disease have occurred. Coolies are engaged and ambulances and closed vans provided in order to remove cases of infectious disease to the infectious diseases hospital and dead bodies to the mortuary. The dispensaries receive sick infants and send them to one or other of the convents, and arrange for the burial of dead infants. Free advice and medicine are given and patients are attended at their houses.

BENTLEY AND TRIMEN'S "MEDICINAL PLANTS."

To the Editor of THE LANCET.

SIR,—In the British Pharmacopœia, 1898, the medicinal plants are frequently referred to: Bent. and Trim. Med. Pl., Vol. ——, Plate ——. Please give me full names of the authors and where I might be able to get a complete copy.

I am, Sir, yours faithfully,

Tasmania, August 21st, 1916. J. L. KERR, M.D.

*** The abbreviations refer to the following work: Bentley (Robert) and Trimen (Henry). Medicinal Plants; being descriptions with original figures of the principal plants employed in medicine, and an account of their properties and uses. Parts 1-42 in 4 vols. 8vo. London: J. and A. Churchill. (1875-1880.) It was illustrated with coloured plates by D. Blair, and has been out of print for some years. It was sold at £11 11s.—ED. L.

SIMPLE FIRE PRECAUTIONS FOR THE BLIND.

THE British Fire Prevention Committee has just issued a poster, measuring 20 by 12 inches, with instructions to the blind in Braille what precautions to take in the event of a fire and how to prevent a fire occurring. The latter section includes references to smoking, the use of matches, celluloid, and flannelette. At the head of the poster the instructions are printed in ordinary type, with the heading

"Warning. Simple Fire Precautions for the Blind." In the Braille the word "simple" is not repeated. The omission may be intentional. Precautions are doubtless not so simple for the blind as to those who see. The notices are suitable for fixing on walls as posters, but in that case they must, of course, be placed within reach of the fingers of the blind. The total number of blind folk in the British Isles is estimated at between 30,000 and 40,000, and there are many schools, homes, workshops, and institutions for their benefit in which these posters would be of service. The committee has decided to provide the warning after receiving information from various quarters that nothing so far had been done for the blind in this regard. Their enterprise is commendable. The official title of the poster is "Free issue for the Blind, No. 29." It is to be obtained from the General Honorary Secretary, Mr. Ellis Marsland, 8, Waterloo-place, Pall Mall, London, S.W.

THE PROLIFICITY OF OPPOSITE TWINS.

To the Editor of THE LANCET.

SIR,—There is a popular and apparently widely known belief that in the case of twins of opposite sexes the girl is invariably sterile, and I should be grateful to any of your readers who can adduce evidence in disproof of this.

I am, Sir, yours faithfully,

Oct. 13th, 1916. H. S. S.

*** We have never heard of this as a supposition. As a fact, we know a lady who has a twin brother, 14 children, and 19 grandchildren.—ED. L.

SPHAGNUM MOSS.

A STRONG appeal has been issued by the authorities of the Auxiliary Hospital, Southernhay, Exeter, for sphagnum moss. It is stated that large quantities are required, and it is advised that this should be sent in before the winter rains make it difficult to gather. The secretaries, Bedford-buildings, Tavistock, Devon, add that it is the duty of every person residing near areas where sphagnum moss grows to send a liberal supply to the hospitals, and assistance is also required from people to clean and dry the moss.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, Oct. 25th.

HISTORY OF MEDICINE (Hon. Secretaries—J. D. Rolleston, Charles Singer): at 5 P.M.

Presidential Address:

Dr. Raymond Crawfurd: Legends and Lore of the genesis of the Healing Art.

Thursday, Oct. 26th.

NEUROLOGY (Hon. Secretaries—H. Campbell Thomson, C. M. Hinds Howell): at 8.30 P.M.

Presidential Address:

Prof. W. D. Halliburton, F.R.S.: The Possible Functions of the Cerebro-Spinal Fluid.

Friday, Oct. 27th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—A. S. Blundell Bankart, E. A. Cockayne, C. P. Lapage): at 4.30 P.M.

Cases:

Dr. F. Parkes Weber: Case of Cerebral Diplegia with Excessive Mobility (Atony) of Joints.
Dr. F. Langmead: A Family showing Cleido-cranio-dysostosis.
Dr. C. E. Lakin: Case of Intra-thoracic Neoplasm.
Dr. E. A. Cockayne: (1) Juvenile G.P.I. with Hypo-pituitarism; (2) Werdnig-Hoffmann Type of Progressive Muscular Atrophy.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, Major Greenwood, jun.): at 8.30 P.M.

Paper:

Capt. C. G. Moor: Work of a Sanitary Section at a Base.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Mr. D. McC. Aitken: Demonstration of Cases illustrating Orthopædic Principles and Methods in Military Surgery.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. B. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P Brooks); Skin Out patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—4 P.M., Dr. C. Kempster: X Rays. The Tube and its Control.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Anomalies of Pigmentation and what they Indicate.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 18th, 1916.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 12	30·170	W.	0·04	80	67	60	58	61	Fine
,, 13	30·170	S.W.	0·03	77	67	61	61	61	Raining
,, 14	30·050	W.	...	82	65	60	59	61	Cloudy
,, 15	29·800	W.	0·01	99	60	55	53	56	Fine
,, 16	30·128	N.W.	...	85	55	42	41	43	Fine
,, 17	30·096	W.	0·53	62	46	42	43	45	Overcast
,, 18	29·884	N.W.	...	88	57	45	50	51	Overcast

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

Offices: 423, STRAND, LONDON, W.C.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied.

NEWSPAPERS FOR NEUTRAL COUNTRIES.

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions.

The following journals, magazines, &c., have been received:—Caledonian Medical Journal, Journal of Hygiene, Homœopathic Recorder, Medical Journal of South Africa, Medical Review, Edinburgh Medical Journal, Revue d'Hygiène, Journal of State Medicine, Journal of Mental and Nervous Disease, Journal of Public Health, Pediatrics, Archives de Médecine et de Pharmacie Militaires, Annali dell' Istituto Maragliano, Calcutta Medical Journal, Dublin Journal of Medical Science, British Journal of Surgery, Annals of Tropical Medicine and Parasitology, British Journal of Dermatology, Science Progress, Canadian Journal of Medicine and Surgery, Canadian Medical Association Journal, Proceedings of the Royal Society of Medicine, British Dental Journal, Military Surgery, Journal of the Royal Naval Medical Service, Public Health, Surgery, Gynecology, and Obstetrics, &c.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Al Advertising Co., Lond.; Ardath Tobacco Co., Lond.; Australian Book Co., Lond.; Messrs. E. G. Allen and Son, Lond.

B.—British Oxygen Co., Lond.; Captain J. A. Bennett, R.A.M.C.; British Medical Association, Lond., Deputy Medical Secretary of; Lady Barrett, Lond.; Messrs. Burroughs Wellcome and Co., Lond.; Sir Thomas Barlow, Bart., K.C.V.O., Lond.; Mrs. A. H. Benson, Lond.; Messrs. F. P. Baker and Co., Lond.; Dr. I. Bastow, Linford; Dr. H. Bon; Dr. G. Blacker, Lond.; Dr. Comyns Berkeley, Lond.; Mr. J. Brindley-James, Lond.; British Red Cross Society, Lond., County Secretary of.

C.—Dr. Raymond Crawfurd, Lond.; Chicago School of Sanitary Instruction; G. W. Carnrick Co., Lond.; Mr. H. A. Collins, Croydon; Dr. W. F. Croll, Aberdeen; Mr. A. G. Campbell, Belfast; Dr. H. P. Cholmeley, Forest Row; Messrs. Coward, Hawksley, Sons, and Chance, Lond.; Chesterfield and North Derbyshire Hospital, Chesterfield, Secretary of; Cornell University Library, Ithaca, N.Y., Librarian of.

D.—Mr. R. S. Doran; Messrs. W. Dawson and Sons, Lond.; Dr. W. T. G. Davidson, Glasgow; Captain O. De Muth, R.A.M.C.; Mrs. Deighton, Cambridge; Denbighshire County Offices, Ruthin, Clerk to the; Sergeant W. Dawson; Dr. Wilfrid Dawson, Lond.; Mr. H. Dickinson, Lond.; Captain H. Dunlop, R.A.M.C.; Mr. Francis Dudley, Bodmin.

E.—Mr. D. Edmonds, Manchester; Dr. H. A. Ellis, Middlesbrough; *Every Week*, New York, Editor of the Digest Department; E. M. C.

F.—Mr. A. E. Foerster, Lond., Messrs. Fairchild Bros. and Foster, Lond; Dr. R. Ferris, Valencia; Dr. Paul Fildes; Dr. R. Fortescue Fox, Lond.; Dr. A. Mearns Fraser, Portsmouth; Dr. H. M. Frost, Paignton.

G.—Mr. H. E. Griss, Ipswich; *Guy's Hospital Gazette*, Lond., Manager of; Sir Rickman Godlee, Bart., K.C.V.O., Lond.; Guest Hospital, Dudley, Secretary of; Dr. C. G. Gibson, Launceston; Messrs. Goulty and Goodfellow, Manchester; Dr. Joseph Geoghegan.

H.—Dr. C. O. Hawthorne, Lond.; Major A. F. Hurst, R.A.M.C.; Captain W. J. G. Henderson; Hulme Dispensary; Manchester, Secretary of; Captain John Henderson, R.A.M.C.(T.); Captain H. Elwin Harris, R.A.M.C.(T.); Mr. J. Hassack, Ipswich.

I.—Invernith Lodge Sanatorium, Colinsburgh, Secretary of; Mrs. L. Ingram, Welford; I. T., Lond.

J.—Dr. F. H. Jacob, Nottingham; Dr. A. J. Jex-Blake, Lond.; Capt. David Johnston, R.A.M.C.; J. W.

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